CHINA REPORT

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English Edition

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Inside the ambitious polar expedition**

POLITICS

**Local Debt:
Investment company in trouble**

SOCIETY

**On Shaky Ground:
Dealing with the scourge of sinkholes**

COVID-19

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China should address governance problems exposed by coronavirus outbreak

Since January, the Covid-19 outbreak has triggered a major public health crisis, infecting more than 77,041 and killing at least 2,445 in China as of February 22. The figures include those in Hong Kong, Macao and Taiwan. While China is still trying its best to contain the spread of the virus, authorities need to reflect on problems in the governance system that surfaced during the outbreak.

> Authorities may have underestimated the danger posed by the coronavirus. Perhaps they were concerned that a genuine assessment of the situation might cause public panic and jeopardise economic and social stability

The Chinese government must realise that its doctrine to prioritise social and political stability over all else may backfire in areas like public health. We now know that authorities were informed of the emerging novel coronavirus as early as late December 2019, when frontline scientists and medical professionals found that the virus was highly contagious.

Not only had authorities missed the short window to contain its spread in the first weeks of 2020, they repeatedly assured the public there was no evidence of human-to-human transmission and that the virus was under control. By the time the outbreak epicentre Wuhan was locked down on January 23, it was too late.

It is still unclear what exactly happened in the early part of January. Authorities may have underestimated the danger posed by the novel coronavirus. Perhaps they were concerned that a genuine assessment of the situation might cause public panic and jeopardise economic and social stability. In any case, the authorities' failure to take swift action and promptly inform the public was a major reason behind the spread, which has incurred huge economic, social and human costs.

The government should learn from these lessons and rethink its approach to transparency. It must realise that transparency is not a threat to social stability. On the contrary, it can enhance social stability by boosting people's trust and confidence in the government. The more transparent the government, the more people can trust and support it. But the more the government is afraid to tell the truth, the more the people are suspicious of it, which could cause a long-term risk to social stability.

The coronavirus outbreak also showed that expert opinions did not receive adequate attention in the decision-making process. We now know that China's scientists and medical professionals did act swiftly to address the health crisis. Chinese researchers released the genetic sequence of the virus as early as January 2. In the meantime, frontline doctors warned authorities and the public of the dangers the virus posed, only to be ordered not to speak publicly on the issue.

China's economic success in past decades has long been credited to a pragmatic and technocratic framework focusing on solving empirical problems rather than on ideological arguments. In the past couple of years, scientific and technological innovation was promoted as the new path of China's economic development. But during the early stages of the coronavirus outbreak, the voices of scientists and frontline experts appeared to be either discarded or ignored, with catastrophic consequences. It is imperative that China restores the role of science and technocrats in its governance system to prevent similar disasters in the future.

As all of China's society has been mobilised to fight the coronavirus, many government-run charities have faced criticism for failing to distribute donated supplies effectively. Given the scale of the health crisis, many government-run charities appear overwhelmed by an apparent lack of grass-roots networks.

In past years, authorities have discouraged, if not forbidden, the development of non-governmental organisations (NGOs). This government monopoly on philanthropy has created a social vacuum that hinders effective response to health crises like the ongoing coronavirus outbreak. Fortunately, many grass-roots volunteer groups have mobilised for relief efforts. The government should review its policy on NGOs.

In a politburo meeting held on February 3, authorities said that the outbreak posed a challenge to China's governance capabilities. Indeed, the outbreak has laid bare the major problems in the country's health crisis response system, as well as social establishment, public communication and scientific literacy of the bureaucratic system. In the aftermath of the crisis, China should learn from these lessons to build a more scientific and robust governance system. ★

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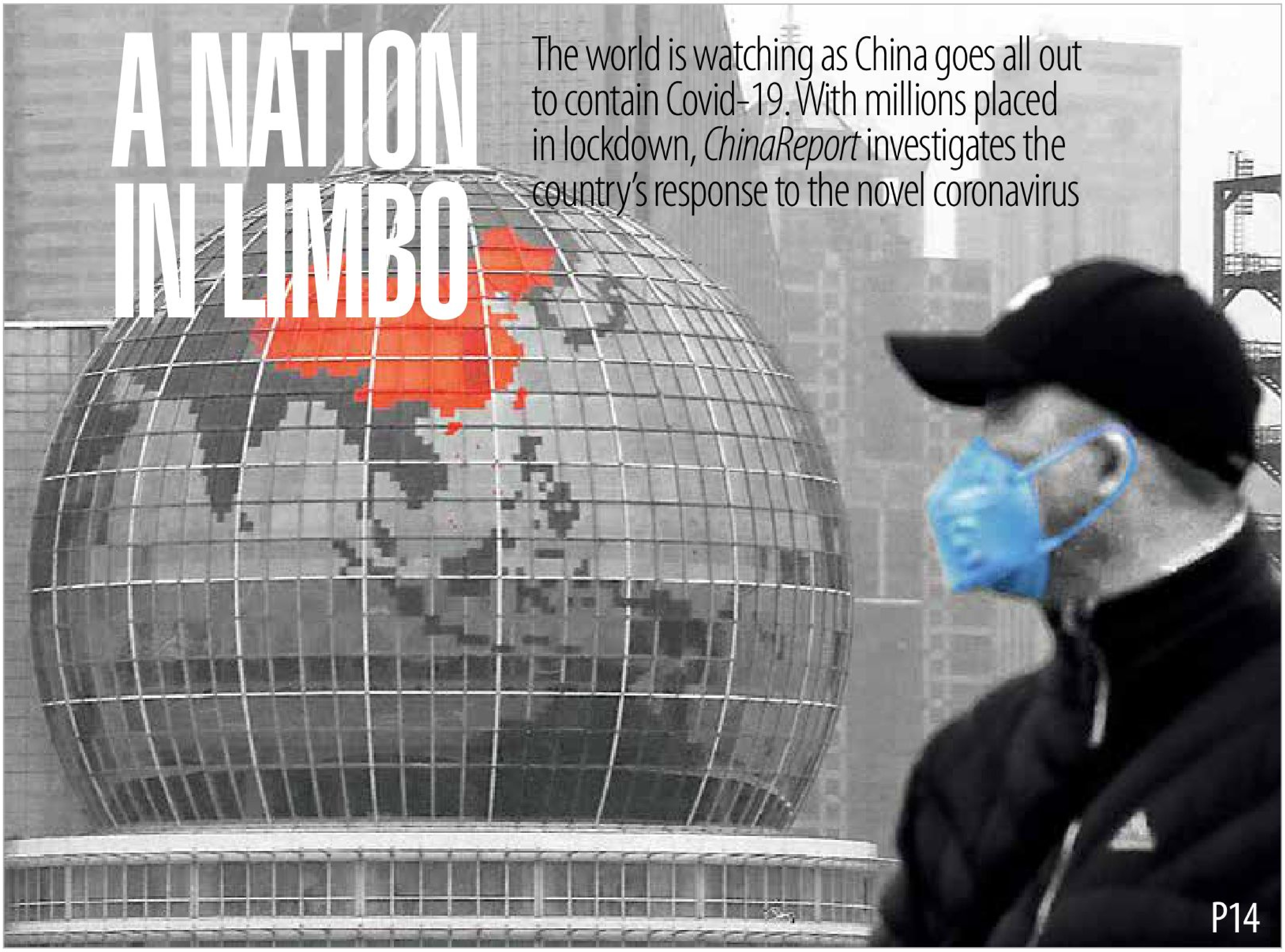

A NATION IN LIMBO

The world is watching as China goes all out to contain Covid-19. With millions placed in lockdown, *ChinaReport* investigates the country's response to the novel coronavirus

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PHOTO BY CFP

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ChinaReport, Chinese Edition
February 24, 2020

Crucial Moment for Wuhan

武汉攻坚
我们如何与疫情赛跑

Since the outbreak of the novel coronavirus in December 2019, Wuhan in Hubei Province remains at the forefront of the battle against the fatal contagious disease. On February 13, the Party chiefs of Hubei Province and Wuhan were relieved of their posts and the fight against the virus entered a new phase after new officials were entrusted with the mission at a critical and difficult moment. The epidemic holds up a mirror to the shortcomings of the local governance system and capability, and there are many lessons to be learned. The new officials are fully aware of the difficult situation of epidemic prevention and control and have proposed measures with a focus on saving patients, quarantining and bringing in relief supplies. Hospitals are rushing to provide more beds for critical patients and reduce the mortality rate, trying to leave no patients in limbo at home. Meanwhile, it is of crucial importance to provide more timely support to the large number of medical workers who are at high risk of infection.

Caijing
February 10, 2019

Coal Power Concern

Since the founding of the People's Republic of China in 1949, coal has always been the country's most important energy resource. Coal-generated electricity has played a central role in China's electricity supply because of its low cost. As of November 2019, China's coal-powered electricity capacity reached 1.03 billion kilowatts, accounting for half of the country's electricity supply. The over-reliance on coal, however, has made it difficult for China to transform its energy structure. By the end of 2018, coal accounted for 27.2 percent of global energy consumption, but in China its proportion was as high as 58.2 percent, which contributed to China becoming the largest emitter of greenhouse gases worldwide. In recent years, China has released ambitious plans to cut the use of coal, but at a time of growing environmental demands, economic downward pressure and trade frictions, energy use tests the wisdom of policy-makers and it remains a challenge to create a clean, safe and inexpensive energy structure.

Oriental Outlook
December 16, 2019

Southern Beijing Development

Since 2010, Beijing has initiated three rounds of development projects in its southern area encompassing the districts of Fengtai, Daxing and Fangshan. The newest scheme, the Southern Beijing Development Action Plan, was released in 2018 to boost the joint and balanced development of the area by supporting a package of industries and sectors such as logistics, pharmacy and financial technology. The new action plan will construct an open and orderly market that will serve the Beijing-Tianjin-Hebei region with a focus on the Lize Business Zone, Beijing Daxing International Airport, Beijing Economic and Technology Development Area, Higher Education Zone and the Xiongan New Area in Hebei Province. Government investment in southern Beijing will rise year-on-year and the area is expected to become a new engine to drive the sound development of the capital and a new pilot zone across the country.

Minsheng Weekly
January 21, 2020

Salaries for Migrant Workers

At the end of December 2019, a regulation on guaranteeing payments to migrant workers was released by the State Council which will go into effect on May 1. The regulation states clearly the responsibilities of employers and related government organisations, and any persons or companies that skimp on migrant worker salaries without an excuse will be blacklisted and ordered to fulfill their obligations within a certain period. Those who fail to pay within the time will be fined an extra 50 to 100 percent of the delayed amount. Statistics from the Ministry of Human Resources and Social Security show that in 2019, there was a 33.1 percent year-on-year decrease in the number of cases of migrant workers facing delayed salary payments. Experts cautioned that while similar regulations have been unveiled previously, it is more important to strengthen supervision and make the regulation a real deterrent to unscrupulous employers.

Fangyuan Magazine
January 15, 2020

Online Fundraising

The mobile internet has fundamentally changed the landscape of the charity sector. Online fundraising has become an increasingly important channel in China, providing new platforms for fundraising institutions. Official statistics show that 20 designated online charitable fundraising platforms released 21,000 fundraisers and solicited 3.17 billion yuan (US$453m) for more than 1,400 charitable organisations in 2018. At the same time, fraud in online fundraising has been prevalent, although China's Charity Law prohibits any individuals or institutions without credentials from publicly soliciting donations. It is high time to improve the management of online fundraising and tighten supervision in order to create a proper philanthropic sector.

WHAT THEY SAY

"This is not flaunting wealth, but a show of power!"

Bai Yansong, an anchorman for China Central Television (CCTV), commenting on news of a woman who posted a photo to Sina Weibo showing that she had driven a luxury car into Beijing's Forbidden City

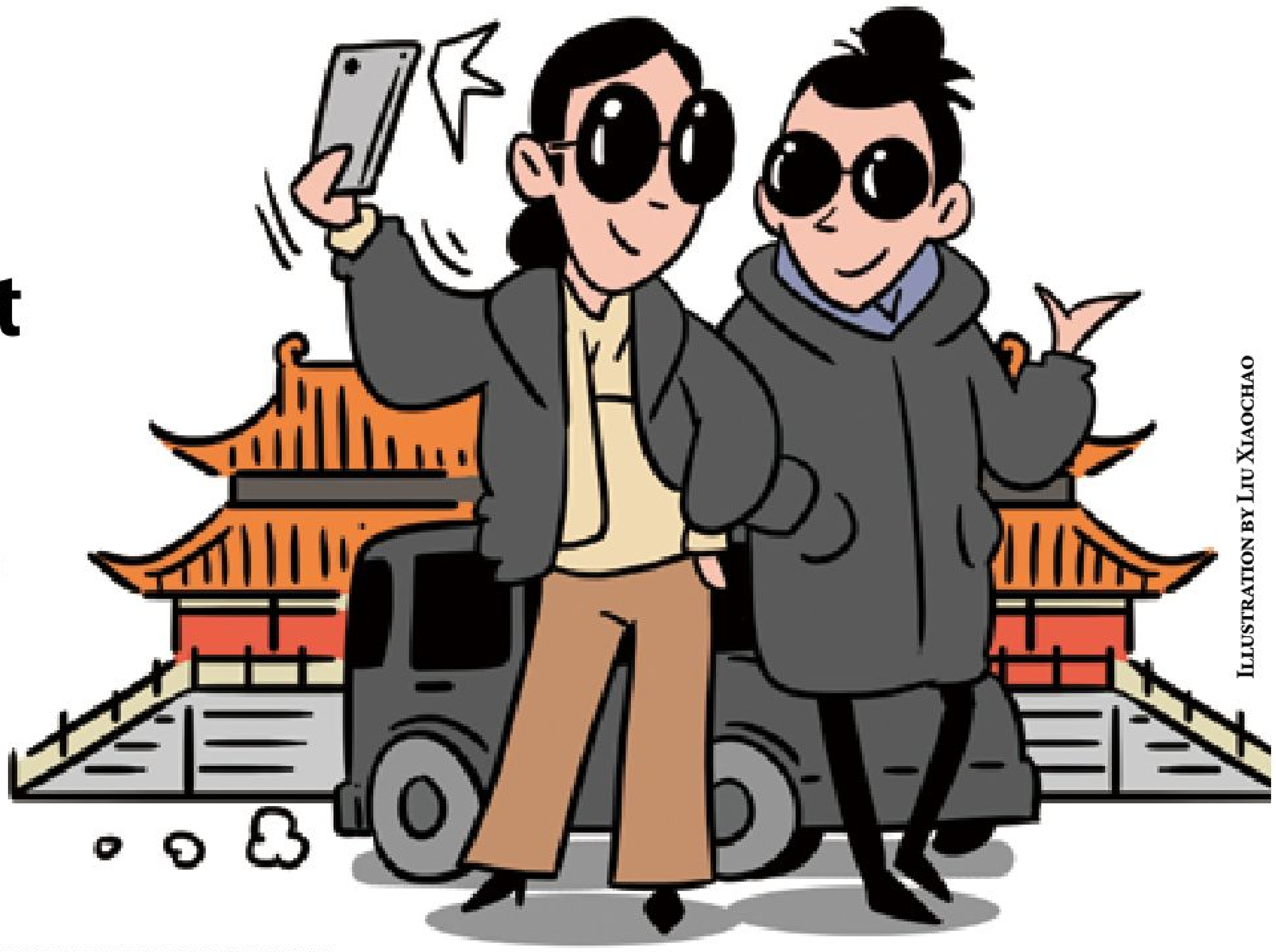


Illustration by Liu Xiaochao

"A healthy society should have more than one voice."

Dr Li Wenliang, an ophthalmologist in Wuhan, Hubei Province who sounded the alarm over Covid-19 but was reprimanded by police for "spreading rumours," during an interview with financial portal Caixin. Li died of Covid-19 on February 7

"Economic research should not only be based on cold macro-data and simple, rigid comparisons. Economists must care for the shops, daily necessities and daily lives behind the figures, especially disadvantaged SMEs and low-income populations."

Economist **Zhao Jian** calling for more attention to be paid to the Covid-19 epidemic's impact on small- and medium-sized enterprises on his WeChat account

"*Parasite* shows that a critical and scrutinizing stance wouldn't definitely conflict with the market. The key is how you express it."

Dai Jinhua, director of the Chinese Film and Culture Institute under Peking University, during a recent interview with WeChat news account GQ Report about the South Korean film *Parasite*

"Expanding investment will no longer be a long-term driver of economic growth when rapid industrialisation and urbanisation are over."

Teng Tai, director of The WANB Institute, a non-profit organisation engaged in studying the new economy, during an interview with Femorning, an online financial news platform

"China has enough policy tools to cope with the economic slowdown. Before implementing monetary policy, we should consider multiple factors to maintain balance including economic growth, leverage ratio, inflation expectations and exchange rates. It's more important to maintain economic growth amid the epidemic and the economic slowdown."

Pan Gongsheng, deputy president of the People's Bank of China, at a press conference on Covid-19 control and prevention held by the State Council on February 7

"Price controls will cause many problems, the most serious of which would force a decrease in supply and drive up prices on the black market. The epidemic will surely raise the costs of production and transportation."

Economist **Zhang Wuchang** on the government's price controls on medical face masks during the epidemic on his Sina blog

"If 'publish or perish' becomes the rule for future generations, academia will be corrupted."

Liu Chen, a doctor of sociology at the Guilin University of Technology, writing for Narada Insights, a news platform under the Narada Foundation, on news that the author of an academic paper on ecological economics had dedicated a significant portion of it to describing the beauty of his adviser's wife

"Any media that doesn't report the truth is fake media."

Journalism researcher **Du Junfei** on Covid-19 epidemic reporting during one of his lessons

NEWSBRIEF

Top Story

Major Policy Document Targets Prosperous Society Goal

On February 5, China's central government issued its No.1 document, a guideline for the entire year related to agriculture, farmers and rural areas, referred to in Chinese as the "three rural issues," or "*san nong*." The document places this year's focus on alleviating poverty and making up the shortfalls.

2020 is the year by which the government pledged to turn China into a moderately well-off society. The three rural issues, according to the government, largely determine how well-off Chinese society will be.

"As domestic and foreign risks are rising and the economy is slowing, rural issues are the backbone of the economy," Minister of Agriculture and Rural Affairs Han Changfu told media.

Poverty alleviation is the baseline of building a well-off society, and the government this year will concentrate its efforts on areas of entrenched poverty, where the poverty-stricken population is more than 20 percent of the total, as well as aiding elderly or disabled poverty-stricken people.

The No.1 document contains a pledge to ensure food, housing, education, medical care and clean drinking water are provided for the targeted groups.

The document emphasises that while helping lift areas out of poverty, officials should prevent other areas falling back into poverty or becoming relatively poor compared to urban areas.

According to the document, infrastructure construction and public services, especially medical care, are the major shortfalls that have widened the urban-rural gap. The No.1 document proposes narrowing the gap by enhancing rural transportation, training and sending more medical professionals to villages and counties, optimizing pollution control and deepening land and financial reforms.

The document also highlights village governance, demanding local officials strengthen the publicizing of science and legal knowledge, improve conflict mediation and launch stricter clampdowns on gangsters and "black power."

Another big focus is stabilizing grain production. The document said the government will continue to support agriculture and rural enterprises.

As pork production was hit heavily by African swine fever in 2019, the document lists measures to resume pork production, including promoting larger piggeries and green farming, strengthening epidemic control, and improving market supervision and regulation. The document predicts pork production will return to normal by the end of 2020.

Technology

Nation Has Installed 130,000 5G Base Stations

According to China's Minister of Industry and Information Technology Miao Wei, China had built more than 130,000 5G base stations nationwide by the end of 2019.

Miao revealed the information at a press conference on the 2019 development of industry and information technology, where he said his ministry has approved 35 types of mobile phones to access the 5G network. Domestic sales of 5G-enabled smartphones have surpassed 17 million.

After the International Telecommunication Union defined the standard for R16, a 5G standard for mMMC (massive machine type of communication), China will, according to Miao, focus on building independent 5G networks to give full play to its advantages.

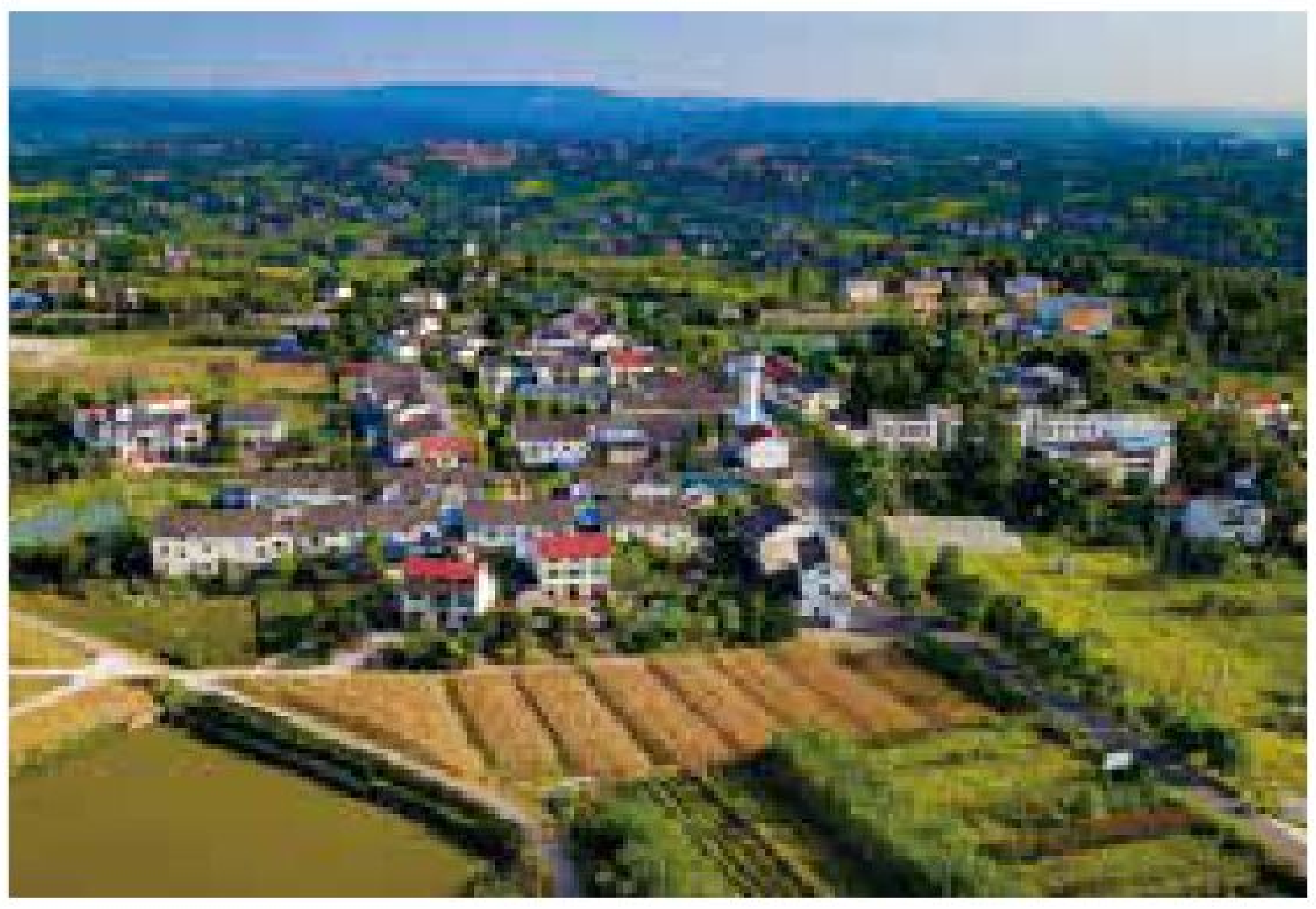
This includes the Internet of Things and the industrial internet. Miao said if industrial enterprises install an internal 5G network, it will promote the enterprise's digitalisation and smart working as well as extend 5G applications.

中国移动
China Mobile
5G+

Miao also talked about the safety of 5G networks, saying that use of Chinese products would not threaten any country's security and that China opposes politicising 5G technology.

Society

More People Lifted Out of Extreme Poverty



A survey on rural poverty by the National Bureau of Statistics shows that the number of poverty-stricken people in rural areas, defined as those with a net annual income of less than 2,300 yuan (US$338) per capita, had declined by 66.8 percent to 5.51 million by the end of 2019, with the poverty ratio, those in poverty as a percentage of total population, dropping to 0.6 percent.

The percentage of the rural population living in extreme poverty has declined by 64.7 percent to 3.23 million in West China, by 69.7 percent to 1.81 million in Central China and by 68 percent to 470,000 in East China. All provinces, municipalities and autonomous regions have seen their rural poverty ratio reduce to below 2.2 percent.

The average annual disposable income of the rural poverty-stricken population was 11,567 yuan (US$1,701), an 11.5 percent nominal growth and 8 percent actual growth compared to that in 2018. The growth rate in annual disposable income of the rural poverty-stricken population was higher than the growth rate in the average disposable income of all rural dwellers.

Trade

China Cuts Tariff Increases on US Imports

China's Tariff Rule Office (TRO) under the State Council announced February 6 that China would cut tariff increases on US$75 billion worth of US imports as of February 14.

On August 23, 2019, China announced it would increase tariffs on US$75 billion worth of US imports by 5 to 10 percent in two batches, with the first batch already implemented on September 1, 2019. The latest adjustment, according to the TRO, will reduce the implemented 10 percent increase to 5 percent and the implemented 5 percent to 2.5 percent.

The cut is likely in response to the Phase One trade deal signed between China and the US on January 15 to ease the trade conflict between the two countries. An unnamed TRO official told the Xinhua News Agency that China's tariff adjustments will be based on the situation of Sino-US trade and that he hopes China and the US will make joint efforts to cancel all the tariff increases imposed on each other.

International

'I Love China': Johnson tells Xi in Call over Covid-19

Although the prime minister's father Stanley Johnson may have beat Boris to it by meeting with Chinese Ambassador to the UK Liu Xiaoming on February 4, the UK PM and Chinese President Xi Jinping shared a personal phone call on February 18.

In a statement on the 10 Downing Street website, the younger Johnson was reported to have offered his sympathies for those affected by coronavirus, received thanks from Xi, and both sides had pledged to deepen their partnership.

Chinese reports of the call were more detailed, saying that Johnson had expressed admiration for the way China has combatted Covid-19. The PM reportedly said he loved China and that "Britain welcomes investment from Chinese companies… We would like to strengthen our cooperation with China under the Belt and Road Initiative."

If this love-in leads to a fuller realisation in a new decade of economic relationships post Brexit, then both sides stand to gain. Whatever the economic outlook might be, in the short term China is likely grateful for Johnson's support, which helps publicise its measures to bring the coronavirus under control.

Environment

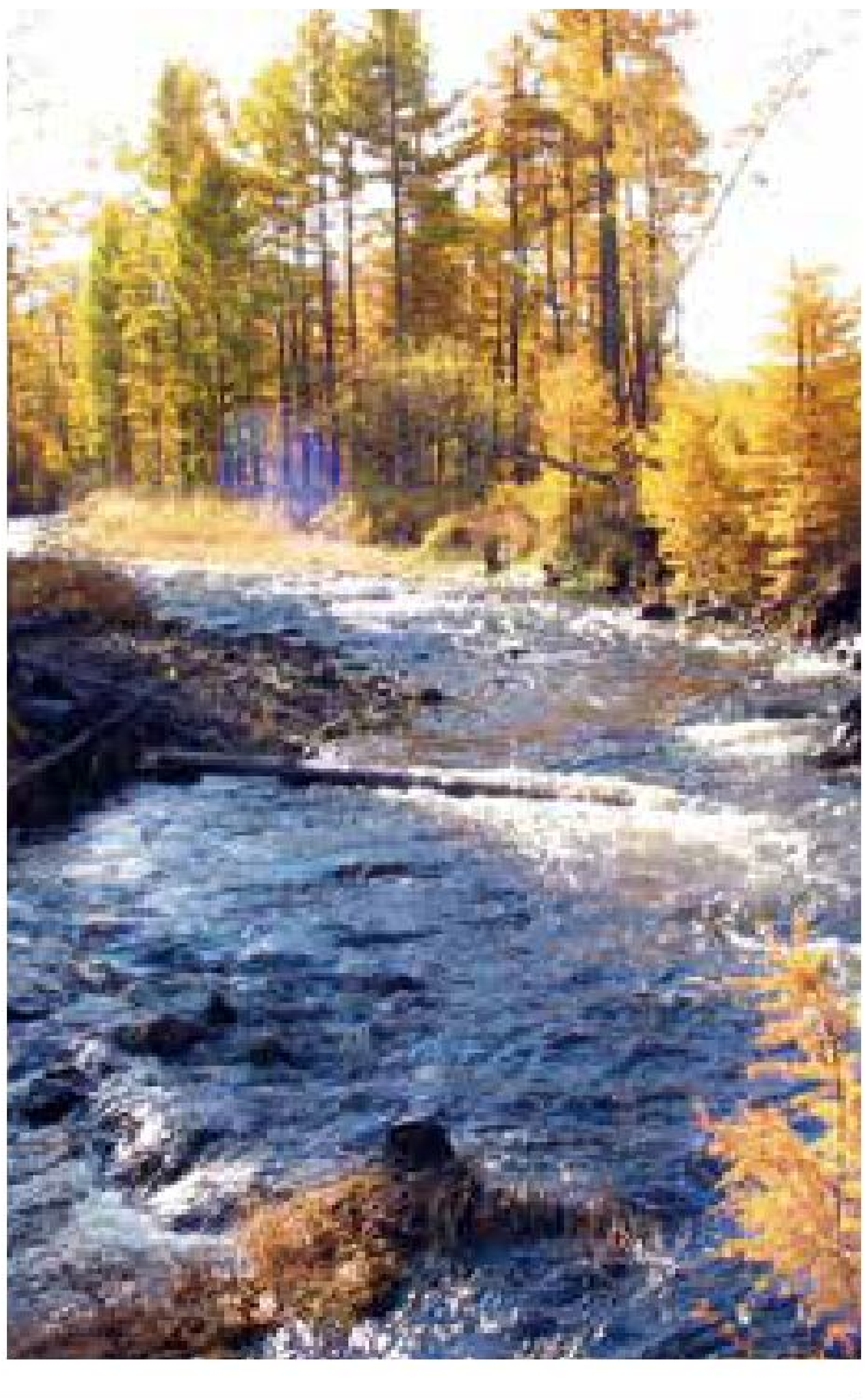
Seven More Wetlands to Come Under International Treaty

The National Forestry and Grassland Bureau of China (NFGB) has nominated seven more wetlands to be added to the List of Wetlands of International Importance under the Ramsar Convention on Wetlands, an international treaty for the conservation of wetlands signed by 170 countries.

The NFGB said the seven nominated wetlands are located in Tianjin, the Inner Mongolia and Tibetan autonomous regions, and in Heilongjiang, Jiangxi, Henan and Gansu provinces. Once listed, the protection of the seven wetlands will be subject to the Ramsar Convention.

According to the NFGB, by the end of 2019, China had 57 listed wetlands of international importance and its total area of wetlands was 53.6 million hectares, with the protection rate exceeding 52 percent.

An unnamed NFGB official told media that they will focus on legislating and strengthening wetland protection, including setting up a hierarchical management system, increasing input and government allowances in wetland protection, conducting small wetland protection in rural areas and promoting the release of a guideline on wetland protection and repair.



Photos by CNS, VCG

Children's Book Calls Civet Cats 'Edible'

A children's book on animals has been pulled from shelves amid netizen outcry over a section that describes civet cats as "edible." Netizens criticised the book for promoting the sale and consumption of wild animals, especially during China's fight against the Covid-19 outbreak, which reportedly originated from the SARS-CoV-2 virus carried by wild bats for sale at a Wuhan market. The book, *Little Animal Encyclopedia*, was published by an imprint under Wuhan University. Native to tropical regions in Asia and Africa, civet cats can host the SARS-CoV-2 virus, experts said. Netizens warned that such epidemics would reoccur if younger generations are not properly educated about protecting wild animals and the environment.

Research Paper Called Out for Flattering Colleague's Wife

A 2013 academic paper has sparked discussions about academic misconduct after netizens found the author had dedicated a signification portion to flattering his adviser and his adviser's wife. The 35-page paper on ecological economics was published in the *Journal of Glaciology and Geocryology*, a prestigious Chinese journal. In the article's abstract, author Xu Zhongmin, a professor at the Chinese Academy of Sciences, exalted the morals of his adviser, Cheng Guodeng, and lavished praise on his wife's beauty. Xu went on say the couple's virtues could help resolve practical ecological and economic problems. Netizens also pointed out that Cheng was the chief editor of the journal. The paper has since been withdrawn and Cheng was removed from his post. But netizens argued the root problem lies in the rigid system that requires researchers to publish a specific number of articles in key journals to be eligible for higher academic titles.

Pig Forced to Bungee Jump at Scenic Spot Later Slaughtered

The ear-piercing squeals of a pig echoed through a new scenic spot in Southwest China's Chongqing after workers made it bungee jump from a tower. Media reports said on January 18, workers harnessed the 150-kilogram pig to a bungee cord and pushed it from a 68-metre-tall tower. A crowd of people collected below and laughed as the helpless pig dangled in the air, read reports. Workers at the scenic area in Fuling District told media that they were testing the bungee equipment for human use. Netizens accused them of animal abuse. "Pigs can be food, but never toys," a Sina Weibo user wrote. The scenic area has since issued a public apology and sent the pig to a slaughterhouse.

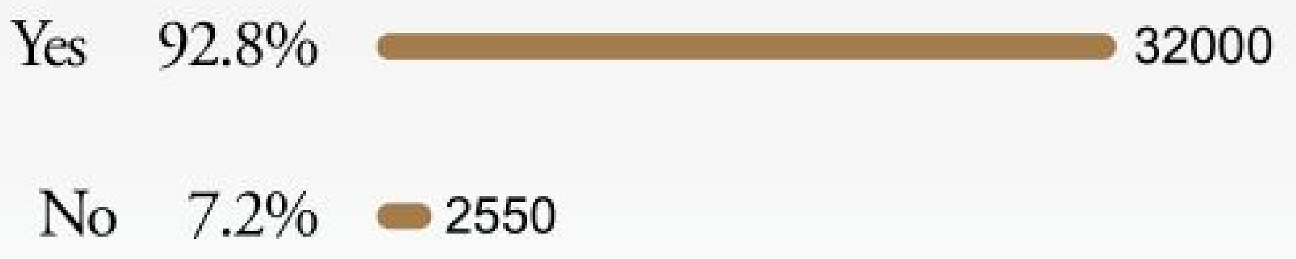
'AI Daughter' Comforts Grieving Mother

A mother reportedly had her deceased daughter's voice synthesised using AI technology. Ever since Li Yang's 14-year-old daughter, Chen Jin, died from T-lymphoblastic lymphoma, Li had yearned to hear her voice once again. Li's wish came true after technicians with a lab at Alibaba synthesised Chen's voice and had it read one of her writings to Li. According to technicians, Li looked calm and peaceful as she listened to Chen's voice, but psychologist Tang Renzhihui told news portal The Paper the AI voice could instead compel Li to indulge in sorrow and slow the healing process. Netizens agreed with Tang, who said the voice, though created with good intentions, may prevent those who have lost loved ones from moving on with their lives.

Poll the People

The Municipal Women's Federation in Shanghai suggested that lawmakers combine maternity leave for mothers (four months) with paternity leave for fathers (15 days) to create "parenting" leave. Couples could then divvy the leave up between each other, with fathers entitled to a minimum of 30 days. Many voiced their support for the policy online, saying it would help reduce employment discrimination against women because of maternity leave. But some opponents worried that the policy would merely drive companies to not hire married people without children.

Do you support compulsory paternity leave?



Source: *The Paper*

Most Circulated Post

Reposted 7,669,055 times by February 13

"Let's salute the medical workers on the frontlines who are grasping the nettle to heal the sick and rescue the dying."

More than 25,000 medical workers have been sent to Wuhan, Hubei Province to fight Covid-19, which as of February 22 had infected 77,041 people and killed 2,445 nationwide. Due to the serious shortage in medical protective suits, masks and goggles, 1,716 medical workers were confirmed to be infected as of February 11, official data shows. Six died. On January 22, China Central Television posted a photo to Sina Weibo showing a medical worker in a protective suit and called on netizens to salute all "medical heroes." The post was shared 7.6 million times.

TOP FIVE SEARCH QUERIES

On Baidu 百度 *for the week ending February 16, 2020*

1

1. Covid-19 Outbreak 583,913
Covid-19, a disease caused by the SARS-CoV-2 virus, had infected over 70,000 in China as of February 16.

2

2. Kobe Bryant Killed in Chopper Crash 537,992
Basketball star Kobe Bryant and his 13-year-old daughter Gianna died in a helicopter crash on January 26. Bryant was 41. The chartered helicopter encountered heavy fog above Los Angeles before crashing into a hillside. None of the nine people on board survived.

3

3. Construction of New Covid-19 Hospital Livestreamed 227,323
Millions watched the construction of the Huoshenshan Hospital in Wuhan broadcast live online from January 23 to February 2. The new hospital was built to receive critical Covid-19 patients, many of whom were left untreated at home due to hospital bed shortages.

4

4. Red Cross in Credibility Crisis 224,252
The Red Cross Society of China Hubei Branch is facing a backlash for distributing more donated masks to a private hospital than to a frontline hospital desperately short of supplies. The hospital appealed to internet users for direct donations.

5

5. PBoC Releases 1.2 Trillion Yuan 143,383
The People's Bank of China (PBoC), China's central bank, injected 1.2 trillion yuan (US$176.5b) of capital through reverse repurchase agreements that aim to stabilise monetary markets amid disruptions from the ongoing outbreak.

TOP BLOGGER PROFILE

Han Hong

Followers: 15,743,980 by February 18

In contrast to the public allegations against the Red Cross Society in Hubei Province over delayed and unequal distribution of donated supplies, Chinese singer Han Hong and her charitable organisation, the Han Hong Love Charity Foundation (HHLCF), have been receiving lots of positive attention for their work. On January 29, a netizen posted that their hospital in Wuhan, the city most heavily hit by the Covid-19 outbreak, had only received supplies from the HHLCF. Photos showed the HHLCF had trucked donations directly to hospitals in need. The deliveries corresponded to Han's posts on Weibo. Han also published the details of each donation on her Weibo, including the names of donors, item quantities and donation destinations. According to media reports, Han, a retired PLA soldier, has devoted herself to charity work since 2007. During the 2008 Wenchuan earthquake, she organised a rescue team to aid the hardest-hit areas and adopted several children orphaned by the disaster. To ensure the efficiency and transparency of her charity, Han tracks and supervises the transportation and distribution of donations personally. Although she fell ill while leading the HHLCF's work in Wuhan, she posted that she would remain strong like a soldier whenever her country is suffering.

WHAT'S HOT?

The Art of Life

Chen Shaoqin, 70, had a brush with fame following a short feature on Guangdong Radio and Television where she talked about working as a volunteer guide in Beijing's 798 Art Zone. Chen spent seven years studying modern art in her retirement. She has impressed gallery goers since 2016 with her passionate explanations and attention to detail. Chen said her secret to success at 70 is staying active and never letting age limit her possibilities. "If you set age aside, you can stay young at heart like Pablo Picasso." Netizens praised Chen for setting a good example for living life to the fullest.

Cat Calculations

With most Chinese people self-quarantined at home from late January to early February, some had lots of time to spend with their pets. But a doctoral student at Tsinghua University made every moment with his cat count in a video of him giving it lessons in advanced mathematics. In the clip, the man patiently delivers a maths lecture to his pudgy gray cat from an even fatter textbook. The cat's helpless and bored expressions say it all. The video made the rounds on social media and lifted spirits exponentially.

WHAT'S NOT?

Fugitives Forced From Hiding

A man in Shanxi Province on the run for killing a man in a fight 11 years ago said he turned himself over to authorities because of pressure from police-enforced Covid-19 checks. The man surnamed Ge said that he felt alarmed by the increased police presence in villages, hotels, highway exits and even construction sites. Because Ge was without an ID card, he believed police would eventually capture him. According to media reports, nationwide epidemic controls have forced dozens of fugitive suspects to turn themselves over to authorities.

Sheer Humiliation

A company in Shaoxing, Zhejiang Province has come under fire for forcing salesmen to dance in sheer stockings as punishment for failing to meet quotas. A salesman surnamed Gao alerted media after he was fired from the company for refusing to accept the punishment. Gao said that he felt humiliated and was planning to sue his former employer. While some netizens criticised the company for mistreating employees, others jokingly asked whether the boss had a stocking fetish.

SOME OF THE IMAGES USED IN THIS SECTION ARE FROM THE INTERNET

North Korea

TAKING A HARD TURN

Though signalling a tougher stance, North Korea's new hawkish foreign minister is not expected to play a decisive role in US relations

By Cao Ran

On January 23, Ri Son-gwon formally appeared as North Korea's new foreign minister at an official lunar new year banquet. With embassy delegates and representatives of international organisations in attendance, the ex-army officer revealed North Korea's new foreign policy, reported the Korean Central News Agency (KCNA).

But Ri is not a new face in diplomacy. He has long been involved in negotiations with South Korea, particularly on reunification. In August 2018 during dialogues between North Korea, South Korea and the US, Ri met with ambassadors from Laos, Indonesia, Vietnam and Cambodia in Pyongyang. Six months later, the second summit between US President Donald Trump and Kim Jong-un in Vietnam ended without a deal. Since then, Ri, who had previously met with South Korean officials in the Demilitarised Zone at the truce village of Panmunjom, has seemingly been absent from foreign affairs until his appointment as foreign minister.

Kim Jong-un declared "the world would witness North Korea's new strategic weapon in the near future" during a session of the 5th plenary meeting of the 7th Central Committee of the Workers' Party of Korea (WPK) in Pyongyang from December 28 to 31, 2019, KCNA reported on January 1. North Korea also stated in a communique issued at the meeting that it would not be bound to the protocols it signed with the US, showing a tough and reluctant attitude towards resuming talks.

Ri Son-Gwon

Photo by CNS

US media has described North Korea's replacement of pro-engagement minister Ri Yong-ho with a hawkish military veteran who has little experience in dealing with US officials as demonstrating a tougher stance towards the US. But many analysts who specialise in North Korea issues told *ChinaReport* that the new foreign minister will not play a decisive role in North Korea-US relations.

Tough Negotiator

In December 2018, Ri waved and smiled for the cameras at a ceremony on the border town of Kaesong for a project to link North Korea's railways and highways with the South. The groundbreaking ceremony marked warming relations on the Korean Peninsula. But it was the last time Ri appeared in front of his South Korean counterparts as head of the Committee for the Peaceful Reunification of the Country (CPRC).

The portly former military officer was a regular in the entourage of North Korean leader Kim Jong-un over the past two years, released photos show. But little is known about his personal background. The only information available is that he had served in the Korean People's Army (KPA) before becoming the head of the CPRC that handles relations with South Korea.

According to Michael Madden, a research fellow at the Stimson Centre, a US think tank, CPRC is a coalition of different groups controlled by the United Front Department (UFD). After becoming head of the CPRC in late 2016, Ri reported directly to Kim Yong-chol, former UFD head and vice chairman of the WPK central committee tasked with inter-Korean relations.

Before that, "Ri worked under Kim for many years in the KPA," said Madden, who has closely observed the political reshuffle in North Korea.

Ri played a leading role in military talks with South Korea since 2006. His involvement continued after Ri was named head of the CPRC, where he was a key figure in dealing with relations with South Korea. Since December 2016, Ri also held other posts related to North Korea's unification efforts, where he used official and civic channels to communicate with South Korea.

The Ri-led committee had signalled to South Korea a desire to negotiate on three occasions. On January 3, 2018, Ri announced on Korean Central Television that North Korea would reopen the North-South hotline in Panmunjom.

Six days later, Ri met Cho Myung-gyon, South Korea's Minister of Unification, on the south side of Panmunjom, marking the first direct ministerial dialogue between the two countries in 28 months.

After that, Kim Yong-chol visited South Korea and the US as Kim Jong-un's special envoy, and held high-level inter-Korean and North Korean-US talks. Ri was in charge of negotiations with South Korea and implementing the outcomes of the high-level talks. Ri was also part of the North Korean delegation at the opening ceremony of the PyeongChang 2018 Winter Olympic Games in February 2018. Kim Yong-nam, former president of the Presidium of the Supreme People's Assembly (SPA), led the delegation.

When Kim Jong-un and South Korean President Moon Jae-in met at Panmunjom in April, the first meeting between the two countries' leaders in 11 years, Ri was among North Korea's nine-member entourage.

Ri has been playing a leading role in inter-Korean ministerial meetings. According to KCNA, Ri participtated in at least 10 dialogues and communications with South Korea and visited Seoul twice in 2018. During that time, he helped advance relations between the two countries, from the three meetings between Kim Jong-un and Moon Jae-in to implementing joint declarations, including the Panmunjom Declaration.

The twists and turns in inter-Korean relations have had little impact on Ri's official career. In April 2017, Ri joined the foreign affairs committee of the SPA. A year later, he became an alternate for the WPK Central Committee and was appointed as an SPA deputy in March 2019.

Kwon Gi-sik, secretary to former South Korean President Kim Dae-jung who has experience in dealing with the CPRC, attributes Ri's rapid promotion to "support from Kim Yong-chol." "Ri is very close to Kim Yong-chol and many people see Ri as his aide," Kwon told *ChinaReport*.

Kim Yong-chol quickly rose through the ranks after Kim Jong-un took control of the country in 2012.

American expert Mark P. Barry, a veteran observer of US-Korea relations and founder of the Asia Pacific Peace Institute, called Ri the "former right-hand to Kim Yong-chol."

Clear Signals

According to Kwon, Ri's diligence impressed negotiators from South Korea. Some friends said that Ri "stayed up until 2 to 3am every day."

But the North Korean official is equally known for his volatile temper. Even before entering the larger diplomatic arena, Ri had already earned a reputation as a rough, hardline negotiator among South Korean officials.

During a parliamentary inquiry in October 2018, Cho Myung-gyon described how the South Korean delegation had once arrived five minutes late for an inter-Korean meeting. Ri expressed his irritation without mincing his words, saying the "work would not go well."

A former South Korean official told Reuters when Seoul demanded an apology for what it saw as North Korea's past military provocations during military talks in 2014, that Ri had "stormed out of the room."

When Kim Jong-un held a reception dinner for Moon Jae-in in Pyongyang on September 18, 2018, Ri spotted the accompanying South Korean entrepreneurs eating Korean cold noodles in another banquet hall. "So you still have an appetite for cold noodles?" Ri asked the guests from South Korea with a "disrespectful and rude tone," South Korean media reported. The slight was interpreted as disapproval for the efforts of South Korean entrepreneurs to boost business ties.

Cho Myung-gyon later told South Korean congressmen that Ri "was expressing his hope to quicken the process of promoting bilateral relations." But there was no official response from North Korea.

With denuclearisation talks at an impasse, some Western media outlets suggested Ri's appointment indicates a toughening stance on nuclear issues.

"It could be a signal that North Korea intends to safeguard its nuclear programme and not negotiate it away unless the US were to remove its sanctions upon the North – a most unlikely scenario," Barry said.

Despite Ri's leading role in high-level inter-Korean talks, he has limited diplomatic experience, particularly in handling the US. Ri does not have as much political clout as his predecessors, or even Choe Son-hui, the first vice foreign minister, who is both a member of the WPK Central Committee and the State Affairs Commission. Ri is only an alternate member of the WPK Central Committee.

"In that sense, his appointment might signal a downgrading of US relations within North Korea's overall foreign policy, or a reduction of the Foreign Ministry's role in relations with Washington," *The Washington Post* quoted experts as saying, while cautioning it was too soon to tell.

Some experts believe Ri's foreign minister role will have little impact on North Korea-US relations. "He is unlikely to ever get personally involved in negotiations," Barry told *ChinaReport*. Choe, a career diplomat who has rich experience in dealing with North Korea-US relations, will continue to manage the process, Barry added.

Kwon said that since Ri has limited experience in dealing with the US, Choe's position would not be affected, adding "the foreign ministry might be co-led by the two top officials in the future."

"Ri has knowledge and experience in dealing with inter-Korean affairs, [which] would help South Korean officials to participate more in North Korea-US deals," Kwon said.

The reaction is generally pessimistic, though. "From now on, we can hardly expect meaningful progress between North Korea and the US," Cheong Seong-chang, a senior researcher at the Sejong Institute in South Korea, told the Yonhap News Agency.

There has been no open official contact between North Korea and the US since October 2019, when their working-level talks in Sweden broke off.★

Local Debt

TOO BIG TO FAIL?

As local government debt worsens, urban investment companies find themselves in serious trouble

By Su Jiede

One of the most persistent among the economic and financial problems challenging the Chinese government is the high level of local government debt, particularly as China relies on an investment and debt-driven model to boost the economy and urbanisation.

After reforms to the tax sharing system between central and local governments in 1994, which granted local authorities more fiscal and financial power, almost all local governments established urban investment companies and State-owned enterprises (SOE) to promote local urban construction and development.

Supported by State-owned financial institutions and favourable land policies provided by local authorities, urban investment companies experienced explosive growth, most through aggressive borrowing and leveraging strategies, especially after 2008, when China resorted to a massive stimulus in response to the global financial crisis. In the meantime, urban investment companies have become the largest debt bearers of local governments.

However, as China's economic growth slowed, the model proved unsustainable as debt reached dangerous levels. In the past years, as China launched efforts to deleverage, a large number of urban investment companies have faced problems of capital outflow, and some are struggling to survive. Among the most prominent recent case is the Yunnan Metropolitan Construction Investment Group (YMCI).

Established in 2005 by the provincial government of Yunnan in Southwest China, YMCI expanded rapidly in the past decade, with total assets increasing from 10 billion yuan (US$144m) in 2008 to over 300 billion yuan (US$21b) by March 2019.

The company's landmark project is the Kunming Dianchi International Convention and Exhibition Centre, built in 2012. The project was launched as a part of provincial efforts to build capital Kunming into a regional trade hub linking China to South and Southeast Asia.

Vanity Projects

Dubbed by some as one of China's many vanity projects, the exhibition centre involves an investment of 30 billion yuan (US$2.1b) and covers an area of 5.4 million square metres, making it China's third-largest exhibition centre. To compensate for YMCI's investment, Yunnan handed the company the land surrounding the exhibition centre for real estate development. This model is common for urban investment companies throughout China. Under such a model, local governments need urban investment companies to support their infrastructure construction, and in return, these companies receive valuable land resources to develop real estate.

But the result is that many urban investment companies are focused on securing star projects to obtain more land, rather than on the management and profitability of these projects. This poses a long-term threat to their financial health.

In the case of YMCI, the once-glamourous exhibition centre turned out to be a major financial burden. In the first quarter of 2019, for example, the centre generated an operating income of 15 million yuan (US$2.2m), while recording a net loss of 194 million yuan (US$28m).

But with political support from the Yunnan government, a booming real estate market and plenty of land to use, YMCI's primary focus was on capital operation and expansion rather than improving the management of the existing business.

In 2014, YMCI ventured beyond Yunnan when it decided to enter the real estate market in Beijing. Then in December 2015, it acquired a real estate company in Xi'an, capital of Shaanxi Province. In 2016, the company made high-profile acquisitions, including eight real estate companies under the Intime Retail Group with a combined value of 4.4 billion yuan (US$634m). At the same time, it spent 11.8 billion yuan (US$1.7b) to acquire a 51 percent stake in Chengdu Metropolis, based in Sichuan Province.

Then in 2017, it attempted to acquire the entire equity with a transaction price of 23.6 billion yuan (US$3.4b). The deal was widely likened to a snake trying to swallow an elephant, as the market value of YMCI was only 5 billion yuan (US$721m) at the time. Eventually, as regulators stepped in, the acquisition failed.

Trouble at the Top

YMCI's failed attempt to expand even more appears to be the result of changes in policy. As the local debt problem started to present a major threat to the country's financial stability, China's central leadership rolled out policies to curb local

Dianchi International Convention and Exhibition Centre, Kunming, Yunnan Province

governments' addiction to borrowing. In 2017, local governments were estimated to have raised 4.36 trillion yuan (US$629b), almost 30 percent lower than in 2016.

Contrary to the change in national policies, YMCI continued to expand during the period, with total assets increasing from 45 billion yuan in 2015 to 292 billion yuan by the end of 2018. In the meantime, the company's debt also surged to 236 billion yuan (US$34b) in the first quarter of 2019.

As China's economic slowdown persists and the central government continues to roll out more plans to push deleveraging at the local level, the company is starting to feel the chill as it is becoming more difficult to access bank lending.

According to a senior executive involved in the decision-making process within YMCI, in the past years, given the booming real estate market and land resources held by the company, borrowing money was never a problem. "Back then, YMCI was quite picky when choosing which bank to borrow from," said the executive, who asked for anonymity. But as the real estate market cooled, the company started facing a major liquidity problem.

Then in May 2019 the company suffered a major blow as authorities announced that Xu Lei, chairman and Party secretary of YMCI was "suspected of serious disciplinary violations" and that he had "turned himself in" to law enforcement agencies. Xu's downfall is believed to be associated with that of Qin Guangrong, former governor and Party secretary of Yunnan Province, who had been put under investigation for corruption just two weeks earlier.

Both hailing from Hunan Province, Xu and Qin's career paths in politics and business appeared similar. During Qin's administration in Yunnan, he set a target that some local SOEs' annual revenue should increase to 100 billion yuan (US$14.4b). YMCI was one of them. It is a typical example of how political considerations influenced the business decisions of China's SOEs. For YMCI, it appears the only way to reach such a goal was resorting to aggressive financing and large-scale acquisitions.

"The problems with YMCI and other urban investment companies are that we are subject to the influence of local governments, which often focus on short-term performance while ignoring long-term risks," the YMCI executive told *ChinaReport*.

With the downfall of Xu and Qin, YMCI has steered away from its past strategy. With mounting debts, the company changed course and is selling its assets. In November, the company sold two major assets to Sunac China for 15.3 billion yuan (US$2.2b). The deal includes what many call "the world's single largest building," the New Century Global Mall in Chengdu, capital of Sichuan Province.

Mega Merger

In the meantime, the company introduced China Poly Group, a mega SOE administered under the central government, as its strategic partner. In July 2019, the Yunnan government signed a cooperation agreement with Poly Group, saying that YMCI will work with Poly Group to push forward a "mixed ownership" reform, a policy launched by the central government in 2017 which aims to introduce more market mechanisms into local urban investment companies to deal with their debt problems.

In October, Yunnan authorities appointed Wei Biao, a former senior executive from Poly Group, as the new chairman and Party secretary of YMCI. Hu Hengsong, assistant president of Caida Securities, who has been studying the transformation of government investment for a long time, told *ChinaReport* that the move may indicate that the cooperation between YMCI and Poly is an administrative decision, rather than a market-based one.

But Hu said that given the land resources held by YMCI, the cooperation between the two, whether an acquisition or a restructuring, may still provide a win-win result.

But so far, neither Poly nor YMCI have provided specifics on the future path of the company.

In a statement released on January 22, YMCI said it estimated the company would record a net loss of between 2.45 and 2.95 billion yuan (US$343-413m) in 2019. It is estimated that the company is liable to pay back 28.7 billion (US$4b) and 30.4 billion yuan (US$4.3b) in 2020 and 2021. Whatever Poly Group's strategy, it will not be an easy task to salvage one of China's largest local SOEs.

YMCI's situation is not unique. According to the 2017 Annual Report on Development of Urban Investment in China, a study co-published by China's National City Investment Association and Social Sciences Academic Press, more than half of all local investment companies have encountered major financial problems as the central government tightened supervision and regulation in response to the increasing problem of local government debt.

"Now, the question for many local city investment companies is how to survive in a tightened monetary environment," Hu said.

According to Chen Yurong, a senior researcher with Redetac, a Beijing-based consulting firm, the problems with China's urban investment companies lie in their fundamental management and personnel structure.

"As local SOEs, not only do these companies have to carry out the decisions of local governments, they depend on local governments for financial support and land resources, which means they lack competitiveness in terms of both profitability and efficiency," Chen said.

Given the relationship between local governments and local urban investment companies, the financial difficulties faced by companies like YMCI are actually a reflection of the overall debt problem of local governments.

According to China's Ministry of Finance, outstanding local government debt had reached 21.3 trillion yuan (US$3 trillion) by the end of 2019. To make things worse, China's 2 trillion yuan (US$280b) tax cut package launched in 2019 as a means to boost the economy lowered the revenue growth of local governments to 3 percent in 2019.

As China's economy is expected to slow further, the local debt problem will remain a major threat in 2020.★

UNDER SIEGE

The Covid-19 epidemic overwhelmed China at what is usually a time of celebration and family reunion. With much of the country under quarantine, *ChinaReport* reports on how the crisis unfolded and its economic and societal ramifications

Staff treat patients in the ICU at the People's Hospital of Caidian District, Wuhan, February 6

Photo by Chen Zhuo from Changjiang Daily

Photo by Chen Zhuo

Doctors and nurses treat a severely ill patient, Wuhan Red Cross Hospital, February 17

LATE TO THE FIGHT

"If we had taken measures earlier, controls would have been better and the influence would have been smaller nationwide," said Wuhan's former Party secretary Ma Guoqiang

By Li Xiangyu, Li Mingzi, Peng Danni and Du Wei

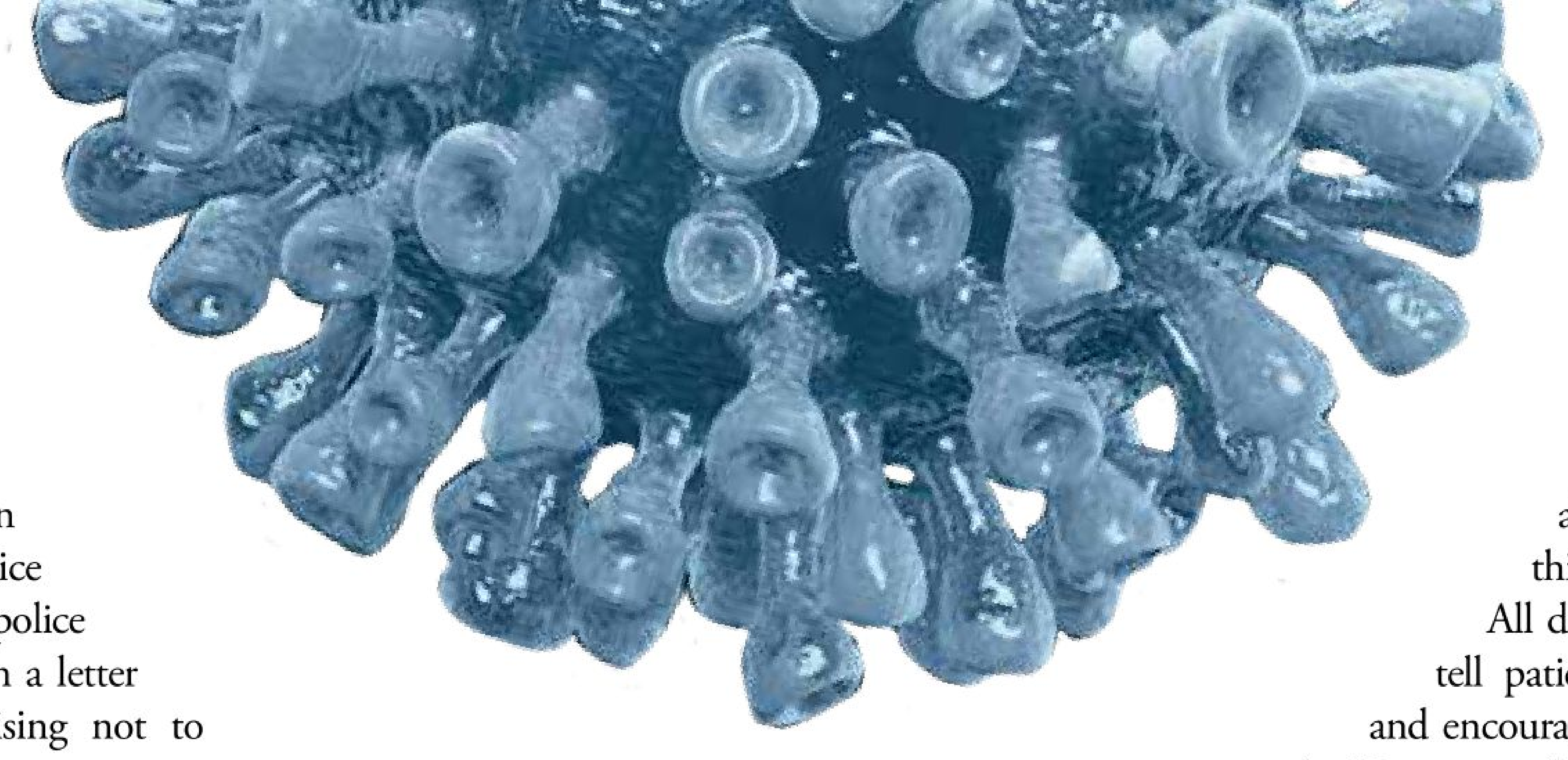
China took to the internet in the early hours of February 7 to mourn the death of Dr Li Wenliang, an ophthalmologist in Wuhan, Hubei Province who died of novel coronavirus pneumonia (Covid-19). He contracted the disease while treating a patient.

Li was among the eight people in Wuhan, at least four of whom were doctors, to sound the alarm over the 2019 novel coronavirus, now officially named SARS-CoV-2 by the WHO. Local police took Li away for questioning and charged him with "spreading rumours."

Netizens honoured Li as a "whistleblower," and called for an official apology and explanation as to why Li's alert was labelled a rumour.

Li first sounded the alarm on December 30, 2019 in a WeChat group of schoolmates. Most were working in hospitals. He posted that his hospital had quarantined "seven SARS patients" from the city's Huanan Seafood Wholesale Market. He later wrote it was an unidentified coronavirus. A member of the WeChat group shared his message on social media.

The following day, officials from the Wuhan Municipal Health



Commission (WMHC) and police criticised Li. The police later forced Li to sign a letter of reprimand promising not to spread rumours.

During this time, the WMHC confirmed 27 pneumonia cases related to the Huanan market but said experts had not found any evidence of human-to-human transmission and that no medical personnel had been infected.

Controls were not tightened until respiratory disease expert Zhong Nanshan, who contributed greatly to the 2003 campaign against SARS, was sent to Wuhan. He revealed on January 20 that the virus could be transmitted between humans and that 14 medical workers were infected.

Confirmed and suspected Covid-19 cases have since soared in Hubei Province and Wuhan. Many could not access treatment due to a lack of hospital beds. At time of press, the virus had claimed the lives of over 2,445 people in China, mostly Wuhan. More than 77,000 have been infected nationwide.

"I feel rueful and guilty now. If we had taken measures earlier, controls would have been better and the influence would have been smaller nationwide..." Wuhan's former Party secretary Ma Guoqiang said during an interview with China Central Television (CCTV) on January 31. Ma was removed from his post on February 13.

The Downplay

Experts confirmed in January that the virus SARS-CoV-2 shows similarities with SARS-CoV (the official name for the virus that causes the disease SARS), adding that it might have originated in bats and then spread to other animals.

The statement aligned with reports that a majority of the first batch of cases either visited or worked at the Huanan market which sold wild animals such as snakes, groundhogs, deer and monkeys. With around 600 vendors, the market is close to a railway station and two residential communities.

Although initial Covid-19 cases were reportedly exposed in early December 2019, the market was not closed down until January 1, 2020. The same day, CCTV reported that Wuhan was experiencing an outbreak of pneumonia of an unknown cause and that police had punished eight "Wuhan residents" for "spreading rumours" about the virus.

"At the preliminary phase of the epidemic, Wuhan's policy was to downplay," Lin Yu (pseudonym), a doctor at the Wuhan Union Hospital affiliated to Tongji Medical College of Huazhong University of Science and Technology, told *ChinaReport*. He said that his hospital, located in Wuhan, forbade personnel from talking to the press without authorisation. "Controls on information were even tighter in clinical departments, infection management departments and centres for disease control and prevention (CDC)... In short, we were not allowed to say anything about the virus... All doctors could do was tell patients to wear masks and encourage them not to visit the Huanan market by saying the food there wasn't fresh," he said.

From January 6 to 10, the WHMC reported no new Covid-19 cases. Over that period, Wuhan held its municipal people's conference.

On January 11, the WMHC announced 41 cases of Covid-19 in Wuhan, but still claimed medical personnel were not infected and there was still no conclusive evidence of human-to-human transmission. The day before, Wang Guangfa, a member of the national medical expert team who went to Wuhan, and who works at a top hospital in Beijing, told media that the epidemic was "preventable and controllable."

Wang discovered that he had contracted the virus after returning to Beijing. In a January 30 interview with the *Beijing Youth Daily*, Wang said he suspected he was infected by a patient in a crowded Wuhan clinic. Though wearing a protective suit and a mask at the time, he did not have goggles.

Wang said he and his team, which was in Wuhan from January 8 to 15, had puzzled over whether SARS-CoV-2 was transmissible between humans. The WMHC stated on January 15 that while experts could not rule out the possibility of limited human-to-human transmission (transmission from generation-1 carriers to generation-2 carriers), the risk of continuous transmission (transmission to generation 3 or above carriers) was low.

"Any conclusion should be scientific and supported by enough evidence... We actually were on high alert at that time, but lacked enough case studies," Wang told the *China Youth Daily*. "We were clear that the epidemic in Wuhan might have been serious by the time we returned to Beijing... We warned hospitals not to make patients wait at the fever clinics... Yes, the number of the cases [reported before January 16] was underestimated," he said.

Despite the statement on January 15, the WMHC suspended the case report from January 12 to 17 when Hubei Province was holding the provincial two sessions, annual legislative meetings.

The public did not take notice of Covid-19 until countries such as Thailand and Japan confirmed cases and said that those infected had recently been in Wuhan. Some Chinese netizens asked how Covid-19 was spreading across borders while no new cases were being reported at home.

The WMHC resumed issuing reports on January 18, confirming 63 cases in Wuhan. The figures, however, did not prevent the local government from holding a massive Chinese New Year banquet on the same day. Held annually in the Baibuting residential area, about 40,000 families attended the pot luck-style banquet.

According to the *Economic Observer*, a weekly paper headquartered in Beijing, people living in 33 of the 55 sections in a community that attended the banquet developed a fever. Another community had at least 10 confirmed Covid-19 carriers.

"We held the banquet based on the information that human-to-human transmission was limited, so we weren't alert enough to it," Zhou Xianwang, mayor of Wuhan, told CCTV on January 21.

Earlier Data

As Wang indicated, experts had a clearer idea about the virus and epidemics than the public. According to media reports, the Wuhan Institute of Virology (WIV) under the Chinese Academy of Sciences obtained the gene sequence of SARS-CoV-2 on January 2 and isolated the virus on January 5. On January 11, WIV submitted the gene sequence to the World Health Organisation.

Chinese experts rushed to publish papers on SARS-CoV-2 in journals such as *The New England Journal of Medicine* and *The Lancet*. Media reported that by the end of January, Chinese scientists had published at least six papers in these two journals.

One that appeared in *The New England Journal of Medicine* on January 29 by a team of experts including China CDC director Gao Fu, however, triggered controversy. The paper, which examined 425 Covid-19 cases, stated: "There is evidence that human-to-human transmission has occurred since mid-December 2019." Among the 425 cases confirmed before January 22, only 55 percent were traced to the Huanan Seafood Wholesale Market.

Photo by Xinhua

Medical workers at the new Huoshenshan Hospital in Wuhan transfer patients to wards on February 4, the first day the hospital opened for admissions

"The paper suggested that the China CDC might have obtained evidence of human-to-human transmission in early January... So, at what link in the chain was the information covered up?" Wang Liming, a professor at Zhejiang University, asked on Sina Weibo. His post was shared thousands of times, with many blaming Gao Fu for putting academic achievement over his job of epidemic prevention.

Gao issued a response through the media, saying the paper was a review rather than a study of the previous cases and that the onset time was inferred. China CDC also delivered a similar statement on January 31 claiming that the paper's study was "retrospective" and that all 425 cases had been made public before January 23.

Netizens were not convinced. Some pointed out that the paper also revealed that the China CDC issued a "level-2" emergency alert about SARS-CoV-2 on January 6 and that there were seven medical workers infected between January 1 and 11 – none of which was made public at the time.

Amid the outcry, China's Ministry of Science and Technology released a statement on January 30, demanding that departments and scientists prioritise the State's and people's interests over publishing papers.

China CDC's Role

Some netizens, however, believed that experts were not to blame. Suspicion circulated that government departments concealed the data from the public to avoid creating widespread panic and negatively impacting the economy as the Chinese New Year approached.

"We are not allowed to publish information about the epidemic outbreak without [higher-level] authorisation," Wuhan Mayor Zhou Xianwang told CCTV on January 27.

China's disease control laws only authorise the State Council and approved health departments at the provincial, municipal or autonomous region level to release information about epidemics.

According to Yang Gonghuan, the China CDC's former deputy director, the organisation set up an online reporting system in 2004 – one year after the SARS outbreak – that enables hospitals nationwide to directly report suspected cases to CDCs at all levels. The China CDC also appointed a special team to monitor the system. Once the number of reports reports of pneumonia cases of an unknown cause exceed five, the system automatically flags the area. The China CDC then dispatches personnel to investigate and collect samples.

"The system does not require reports through levels... Once a hospital reports a case, we can see it immediately," Yang told *ChinaReport*.

Timely reports though, do not mean timely releases. Zeng Guang, chief scientist at the China CDC, said the organisation is not a decision-making body and "only has the right of work," such as collecting and analyzing data. "Compared to the US CDC, which is a government department, the China CDC is only a government-backed organisation and has no power... It is not allowed to talk about an epidemic without authorisation," he told *ChinaReport*.

Huang Yanzhong, director of the Centre for Global Health Research, explained that CDCs at all levels focus solely on technical work and that corresponding health commissions limit their power.

By press time, no officials from the National Health Commission or local health commissions in Wuhan and Hubei had addressed public questions surrounding the postponed release of information.

The Big Delay

January 20 was the turning point for the Covid-19 outbreak in Wuhan. The WMHC reported 136 new cases confirmed on January 18 and 19, and for the first time did not include "limited human-to-human transmission" and "low risk of continuous human-to-human transmission" in its statement.

The same day, Zhong Nanshan told CCTV that SARS-CoV-2 is transmissible between humans and that 14 medical workers were infected while treating a virus carrier.

According to Wuhan Mayor Zhou Xianwang, the infections had occurred at the neurosurgery department of the Wuhan Union Hospital affiliated to Tongji Medical College of Huazhong University of Science and Technology where surgeons "ignored" a patient's Covid-19 symptoms before operating on him.

However, a neurologist working at the same hospital denied the accusation online, saying the patient did not show any symptoms of a respiratory tract infection until three days after the operation.

A medical worker with the neurosurgery department supported the claim, saying that the patient, 69, went under the knife on January 7, two days after the WMHC claimed there was no obvious evidence of human-to-human transmission and no medical personnel had been infected. "In that case, who would have known to quarantine the patient and apply higher-degree protection?" asked the medical worker, who spoke to *ChinaReport* on condition of anonymity.

Dr Li Wenliang contracted Covid-19 in a similar way. According to his Weibo account, he began showing symptoms on January 10 and was hospitalised on January 12. Li believed he was infected while giving an eye exam. His patient did not develop a fever until the day after the eye exam.

The news sparked public fury towards Wuhan and Hubei officials. Because Covid-19 is thought to have a maximum incubation period of 14 days (although some experts say it could be longer in some cases), many argued that health workers would have been better protected if the government had gone public with the information earlier.

Photo by Xinhua

Zhong Nanshan, leader of the scientific research team for Covid-19 prevention and control, said on February 2 that he supports the conclusion that SARS-CoV-2, the novel coronavirus that causes Covid-19, originated in bats, but said that more research is needed to confirm if there is an intermediate host

"Even though the local government has no right to publish information about epidemics without authorisation, they could disseminate other relevant information, such as prevention measures," He Yuan, executive director of the data-related Law Research Centre at Shanghai Jiao Tong University, told the *Nanfang Metropolis Daily*.

But most in Wuhan did not start wearing masks until January 21, said Guan Yi, a virologist at the University of Hong Kong, who visited the city from January 21 to 22. He told financial portal *Caixin* that he was "shocked" how people still crowded in local vegetable markets and "his jaw dropped" when he saw tour groups at the local airport.

As Guan booked a ticket to leave Wuhan, Hubei's top leaders, including the Party secretary and governor, attended a Spring Festival performance. Among the 40 performers, several "had a cold," according to an official report.

Wuhan was locked down on January 23. But since the Spring Festival travel rush had begun two weeks earlier, around five million people had already left the city, Mayor Zhou Xianwang said. ★

Covid-19

PUTTING THEIR HEALTH ON THE LINE

Hospitals in Wuhan are struggling to overcome the Covid-19 outbreak amid a shortage of beds and essential medical supplies, and as exhaustion and stress undermine frontline workers

By Li Mingzi, Du Wei, Li Xiangyu, Xu Tian, Zhou Qunfeng

An aerial view of the construction site for Huoshenshan Hospital in Wuhan designed for patients suffering from Covid-19, on January 24, the second day after construction began. The livestream of the build became a hit on the Chinese internet, as many people were quarantined with little else to do over the extended Spring Festival holiday

Photo by Xinhua

On December 31, 2019, Wuhan Municipal Health Committee announced that 27 patients in the city were found to be infected with an "unexplained pneumonia."

On January 20, Zhong Nanshan, a respiratory expert who heads China's National Health Commission, told China Central Television (CCTV) that a neurosurgical patient at the Wuhan Union Hospital of China had infected 14 medical workers, the first confirmation that the novel coronavirus, now called SARS-CoV-2, could be transmitted between humans, causing a disease with the official name of Covid-19. The real picture of the epidemic began to surface. The public finally realised that it had already developed into an irreversibly grave situation.

Horrified by the deteriorating situation, people exhibiting the symptoms of fever and cough rushed to hospitals to seek a diagnosis and treatment. Faced with extreme shortages of hospital beds, medical equipment and protective gear, the healthcare system of the city was for a period, on the verge of breakdown.

Hard to Find a Bed

"I couldn't register at the outpatient department at all. There were too many patients waiting in front of me," Zhang Xin, an associate senior doctor at the ophthalmology department of the Renmin Hospital of Wuhan University, told *ChinaReport*. On January 22, she developed symptoms, alternately feeling feverish and cold.

She called her colleagues at the outpatients department to ask about the test requirements, prepared the test sheets and sent the results to her colleagues through WeChat. After her colleagues wrote down a prescription containing several antiviral drugs, she bought the medication from the pharmacy.

"As a medical worker, at least I could find ways to treat myself with the assistance of my colleagues. I can't imagine how helpless ordinary patients would be," Zhang said.

From January 23, Wuhan adopted a "seven plus seven" model – to choose seven second-class hospitals near the city's seven large hospitals as designated hospitals which would be fully utilised to treat suspected and confirmed cases.

As one of the designated hospitals, Wuhan Red Cross Hospital, acting in support to the Wuhan Union Hospital of China, is near the Huanan Seafood Wholesale Market which is widely considered to be the source of the Covid-19 outbreak.

On January 22, Wuhan Red Cross Hospital reconfigured its main building: the first and second floors were entirely transformed into an outpatient department for dealing with fever, the third and fourth floors are for patients on drips, the fifth floor is a sterile zone, and the sixth to 15th floor consist entirely of isolation wards.

But the hospital found it extremely difficult to bear the heavy patient flow. On January 29, Xiong Nian, director of the Wuhan Red Cross Hospital, told *ChinaReport* that due to the lack of beds, there were nearly 100 suspected cases still in the outpatient department. On January 29 alone, the outpatient department took in 130 patients under observation.

"It was hard to find a bed across the entire city," Xiong said. "Though local hospitals were ordered to take in as many patients as possible, in reality, that was not the case. Not a single hospital could successfully do that."

"Since large hospitals were too full of patients to offer a single bed, more and more patients crowded into community clinics. However, as community doctors have no ability to distinguish whether a patient has been infected or not, many undiagnosed patients, having waited for three or four days, finally become severely ill," Xiu Ming, director of the Beijing-based Fuxing Hospital affiliated to the Capital University of Medical Sciences, told *ChinaReport*.

To alleviate the pressure, city authorities announced they were building two emergency specialised field hospitals in response to the worsening situation. Having opened on February 2, Huoshenshan Hospital, which was constructed in 10 days, provides 1,000 beds and 1,400 medical staff. Leishenshan Hospital, which opened on February 8, can provide 1,500 beds.

Starting on the night of February 3, the city was working to convert its sports stadium and two convention centres into quarantine centres for Covid-19 patients with mild symptoms. Offering a total 3,800 beds and 2,000 medical staff, the three makeshift hospitals have been treating patients since February 4. Ten more venues were in the process of being transformed into quarantine centres to provide more than 114,000 beds.

Vulnerable Health Workers

Dr Li Wenliang was an ophthalmologist at Wuhan Central Hospital. On 30 December 2019, Li saw a patient's report which showed a positive result with a high confidence level for a SARS-type coronavirus. "Seven confirmed cases of SARS were reported to hospital from Huanan Seafood Market," he wrote in a private WeChat group for his classmates. Later, his WeChat messages were shared on social media and gained attention. On January 3, 2020, Wuhan police summoned and admonished him for "making false comments on the internet."

As one of the first to warn of the virus, Li was seen as a hero by the public. He did not believe that he would also end up as a victim of the novel coronavirus he had tried his best to warn about. The 33-year-old doctor died on February 7, leaving behind a pregnant wife and a son. His death came as a heavy blow to the public, and sparked widespread mourning.

On January 31, in an interview with *ChinaReport*, Li explained how he might have been exposed to the virus. "Since at the time the authorities hadn't yet confirmed the virus could be transmitted between humans, as an ophthalmologist, I was so careless and thought the 'unexplained pneumonia' was still quite far away from me. So I didn't wear an N95 mask."

On January 8, Li treated an 82-year-old woman with glaucoma.

Photo by Gao Zhao

Wuhan Union Hospital of China has renovated its structure and created a new inpatient area to provide 700 beds to treat fever patients. The new wards started admitting patients on January 29.

Photo by Xinhua

On January 28, workers from the China Construction Third Engineering Bureau press on with the building of Huoshenshan Hospital. It took only five days to build the basic structure of the hospital

At the time, the patient had not yet developed a fever and Li did not inquire about her contact history with Huanan market. The next day she began to have symptoms of fever and loss of appetite. After being examined, it was suspected she was infected with the "unexplained pneumonia." On the evening of January 9, a relative who was with the patient also developed a fever, a sign of human-to-human transmission.

Soon Li started to have similar symptoms. He immediately moved out of home and quarantined himself at a hotel, away from his wife and 5-year-old son.

"Two colleagues at the ophthalmology department were infected after me. Afterwards all my colleagues started wearing N95 masks," Li said.

"In the beginning, we vaguely knew about the potential threat of the virus, but we didn't have protective equipment or a reliable diagnosis method or related guideline. We didn't know how to effectively quarantine and treat such patients and how to protect ourselves. Not until Zhong Nanshan's January 20 interview did people finally realise the gravity of the situation," another infected doctor at the Central Hospital of Wuhan told *ChinaReport*.

"Many health workers did not take precautions during that period. They didn't wear a mask when they saw patients," Xiong Nian told our reporter. By January 21, Xiong indicated, 35 medical workers at the Wuhan Red Cross Hospital were suspected to have been infected. By January 29, more than 80 had fallen ill with a fever, among whom 30 had been tested for the novel coronavirus by nucleic acid detection, the standard test. One-third tested positive.

Xiong said that on January 21, there were only 13 protective suits in the entire hospital, which could only be distributed to a few doctors in the fever outpatient department and emergency department. Most nurses attended patients without any protection.

Dr Zhang of Renmin Hospital told *ChinaReport* that many anesthetists wore swimming goggles due to a lack of protective eyewear. Later, even swimming goggles were nowhere to be bought.

Under extreme stress due to the tremendous workload, the lack of supplies and the high possibility of being infected, more and more health workers are suffering from psychological pressure. Breakdowns are becoming common. Social media feeds show clips of frontline medical workers weeping uncontrollably. "They are just like platoons of weaponless soldiers who have to go to the [battle] front," Zhang said.

Lack of Equipment

Wuhan Union Hospital of China is a major battleground for the outbreak with more than 2,000 staff members. A senior director of the hospital told *ChinaReport* that the extreme shortage of essential supplies has driven doctors and nurses into a corner.

A protective suit usually should only be used for four hours and should be instantly disposed of when taken off. To prolong the use of the protective suit, some doctors and nurses chose not to drink water for an entire day to avoid going to the toilet. Some health workers were reduced to wearing rain jackets or sewing their own face masks while treating virus patients because of a lack of protective gear. Other

Photo by Li Zhengni

Wuhan International Expo Centre was requisitioned to store relief supplies. On January 31, dozens of health workers from hospitals, community health centres and other medical institutions designated to treat patients suffering from Covid-19 waited to be allocated medical supplies

reports claim medical workers are using diapers so they do not have to take the suit off during their shift.

Out of desperation, on January 23, more than 20 hospitals in Wuhan, bypassing the approval of the authority, directly solicited medical supplies, such as protective suits, N95 masks and protective goggles from the public.

People in China and overseas responded to the call. Billions of yuan in aid and tons of relief goods poured into Wuhan.

Concerning shortages of supplies, Wang Jiangping, Deputy Minister of the Ministry of Industry and Information Technology, said on January 26 at a press conference that the productivity of enterprises was compromised during the Spring Festival holiday. Though manufacturers urgently resumed production, it was still only up to 40 percent.

On January 29, Wuhan Union Hospital of China once again made a cry for help, seeking donations from the public.

Zhang Xin indicated that after the city was put into lockdown on January 23, individuals, businesses and civil institutions around the country donated money and supplies, but many of these donations did not reach the intended hospitals due to failures in the delivery process.

"Hospitals are not allowed to directly receive donations. What they can do is to report their needs. It is the Red Cross Society that takes charge of receiving and distributing donations. Hospitals have to follow the procedure," Zhang told *ChinaReport*. Donations from overseas are required to be inspected through customs.

To solve the pressing need, health workers sought ways to buy protective equipment by themselves. In bypassing the Wuhan Municipal Health Commission and directly seeking help from the public they hoped to relieve their situation. "It was nothing but a desperate attempt of the helpless hospitals," Zhang said.

Netizens were outraged after finding that the donations that had poured in from across the nation had failed to ease the deficit. The anger boiled over after it was noticed that the local branch of the Red Cross Society of China (RCSC) had allocated just 3,000 surgical masks to Wuhan Union Hospital, the major battlefield to fight the outbreak. In the hospital's appeal, it asked for at least 5,000 N95 masks and 8,000 surgical masks. In comparison, two other smaller private hospitals which played no role in fighting the epidemic received six times as many surgical masks.

The RCSC Hubei Branch attributed the misallocation and inefficiency to being short staffed.

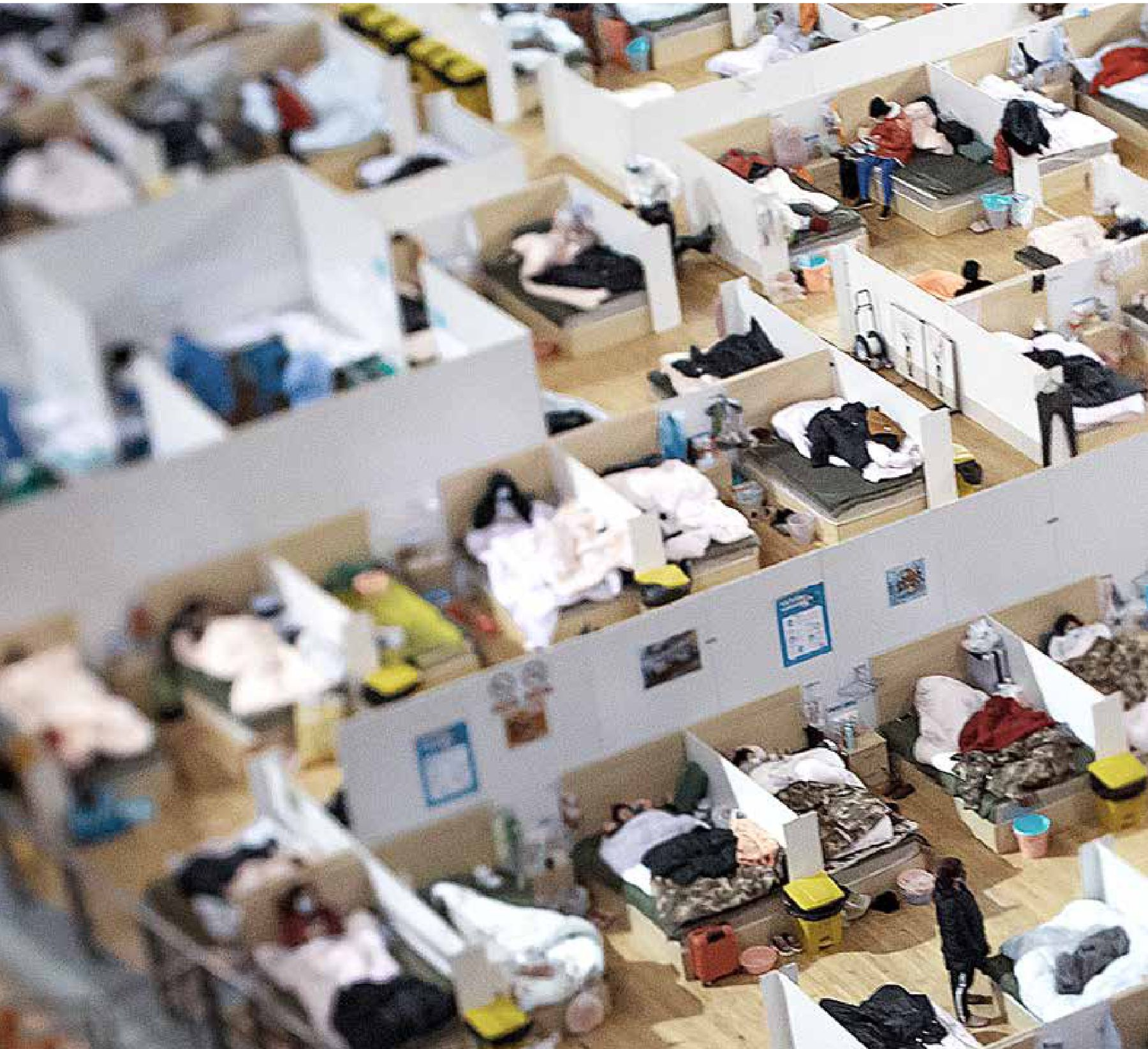
In an interview with *ChinaReport*, Zhang Qin, then full-time deputy director of the RCSC Hubei branch, said, "The main problem that challenges us is that we are understaffed. Some staff members left Wuhan during the Spring Festival and couldn't come back due to the lockdown. Currently, only 21 are on duty."

An investigation by the provincial supervisory commission showed that some officials with the RCSC Hubei branch had failed to take responsibility when receiving and distributing donated funds and relief goods. They were also found to have violated regulations and were responsible for information disclosure errors.

On February 4, Zhang Qin was removed from office for dereliction of duty in the fight against the epidemic. He was also dismissed from the leading Party members group of the RCSC Hubei branch committee of the Communist Party of China, and given a serious intra-Party warning as well as a serious administrative demerit, according to the notice from the provincial supervisory commission.

Chen Bo, a member of the leading Party members group of the RCSC Hubei branch committee of the CPC, was also given a serious intra-Party warning and a serious administrative demerit. Gao Qin, chief of the RCSC Hubei branch committee of the CPC and also the executive vice director of the RCSC Hubei branch, was given an intra-Party warning.

Meanwhile, the toll on frontline medical staff continues to climb. Neurologist Liu Zhiming, director of Wuhan Wuchang Hospital died of Covid-19 on February 18, aged 51. As of press time, more than 1,700 health workers are reported to have been infected with the coronavirus, and at least six have died. ★



Volunteers from Blue Sky Rescue, China's largest non-profit civilian rescue organisation, carry heavy disinfection equipment to sterilise Changsha Railway Station, Changsha, Hunan Province, on February 4

PHOTO BY CNS

Patients lie in beds in a quarantine centre on February 17. The makeshift hospital was transformed from the gymnasium of Wuhan Sports Centre, providing 1,100 beds for confirmed patients with mild symptoms of Covid-19

PHOTO BY XINHUA

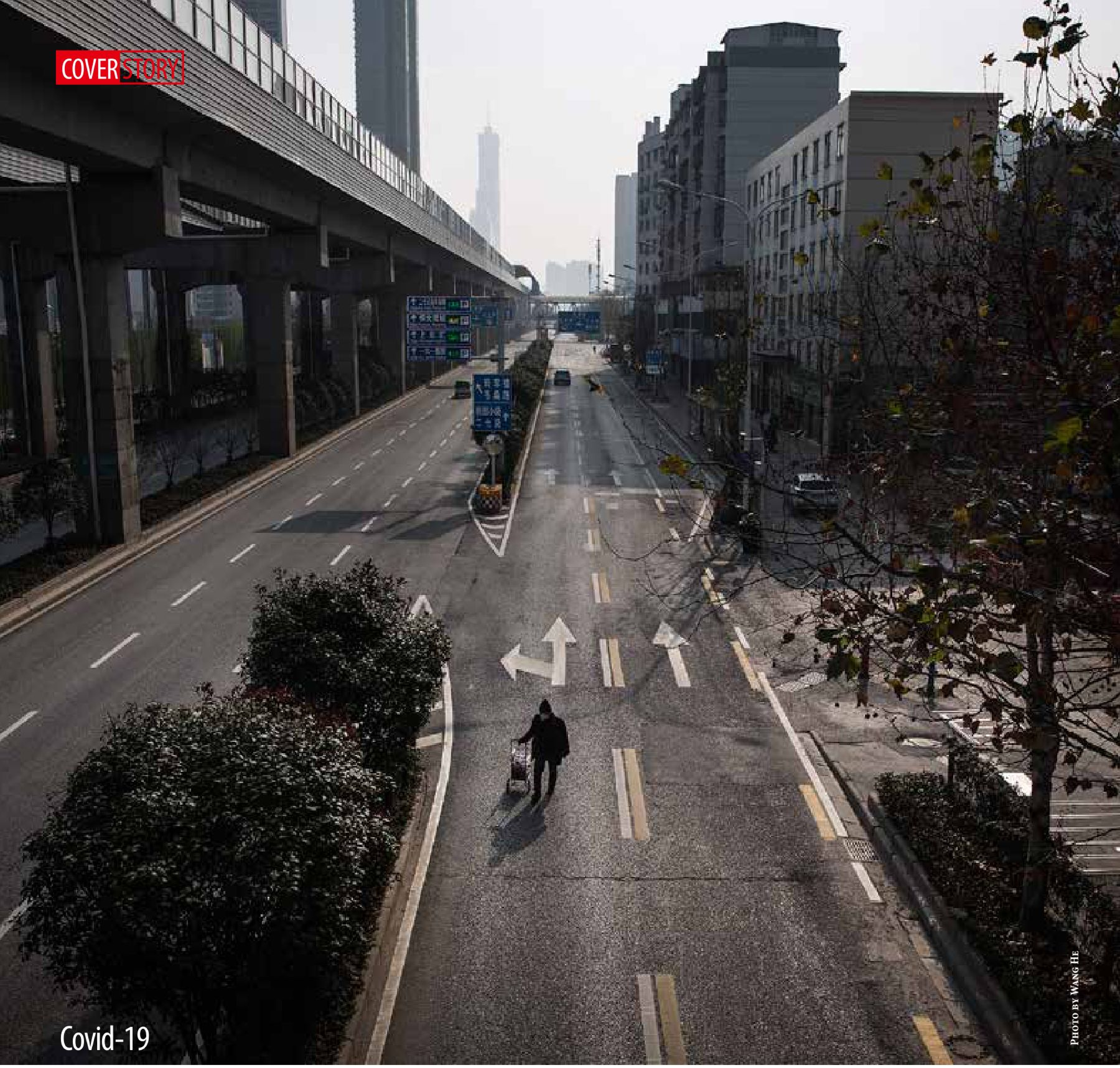


Photo by Wang He

Covid-19

ARMY OF VOLUNTEERS

A man drags a shopping cart along a deserted street in Wuhan, which was put into lockdown on January 23

Amid the ongoing lockdown, volunteers in Wuhan are finding ways to help one another and keep their communities functioning

By Huang Xiaoguang

As train passengers arrived at Wuhan's stations in mid-January, conductors announced in a stern tone: "Once you exit the station, you won't be able to leave the city for a period."

With a population of more than 11 million, Wuhan is at the confluence of the Yangtze River and its largest tributary, the Han River. The capital of Central China's Hubei Province has long been an important shipping and transport hub.

When the Covid-19 epidemic officially broke out on January 23, China imposed a lockdown in Wuhan to stop the virus from spreading. Authorities placed travel restrictions on Wuhan and neighbouring cities. Private vehicles were banned in the downtown area. Highway exits were blocked. Residents could not leave the city.

But not everyone was quarantined at home. An army of volunteers including doctors, nurses, drivers, supply delivery teams, pet rescuers and psychiatrists stepped up to help their hometown during the crisis.

Community Driver: Chen Fei

When the epidemic broke out, Chen Fei's family hid his car keys. He works as a part-time ride share driver in Wuhan, and they didn't want him going out for work. But over the following days, Chen left home earlier and returned later than usual. He was volunteering as a much-needed driver.

"People in Wuhan didn't have any experience [in fighting a virus] before. Some friends working in hospitals warned me how serious the situation was, but we were so careless at first that we didn't wear masks," Chen told *ChinaReport*.

Chen said a short video shot in a local hospital showing exhausted doctors and nurses sleeping on the ground in rows inspired him to help. He joined a group offering free rides to medical workers in the city's Qingshan District.

Mei Yi, a nurse at the China Resource & WISCO General Hospital in Wuhan, left a deep impression on Chen. On January 25, Chinese New Year's Day, Mei left her hometown for Wuhan to work. More than 100 kilometres away in the city of Huanggang, Mei paid a driver 1,000 yuan (US$143) to take her to Wuhan's city limits. There, Chen Fei picked her up and drove her to the hospital for free.

"She wept after getting in the car," Chen said. "She told me that her family strongly disapproved of her decision to go back to Wuhan. She was under a lot of pressure but still insisted on going." Mei told him that a colleague and her roommate who returned to work several days earlier had been infected, which added to her sorrow and fears.

The Wuhan government banned non-essential vehicles in downtown areas to contain the virus outbreak on January 26. To help residents gain access to daily necessities, authorities recruited 6,000 taxi and ride-share drivers to serve 1,159 communities in Wuhan. They allotted each community a minimum of four cars.

Chen would leave home at 7am to bring medical personnel to work and then return to help residents of the Dongshanting community.

The team of volunteer drivers expanded daily. They formed groups on WeChat. Chen joined three groups, which already had 1,000 volunteer drivers.

Every time he dropped someone off, Chen disinfected his car carefully with medicinal-grade alcohol.

Among the more than 30 volunteer drivers in one of Chen's groups, two became infected. All Chen could do was self-quarantine when not volunteering. Every night when he returned home, Chen maintained a distance from his family members, ate alone and locked himself in his bedroom.

Delivery Organiser: Xue Qing

While Chen and others transported people, others concentrated on supplies. A volunteer team of more than 500 cars, pickups and large trucks was working to distribute donations of medical supplies from around the country to hospitals in Wuhan.

"We hope to guarantee the protection of frontline health workers so they can safely fight the battle," Xue Qing, organiser of the supply delivery team, told *ChinaReport*.

"Because of the extreme lack of medical supplies, many doctors are reluctant to dispose of their protective clothing and wear them as long as possible. So they force themselves not to drink a drop of water to avoid going to the toilet," Xue said.

Some doctors and nurses resorted to covering their shoes with regular plastic bags, he added.

More than 20 hospitals in Wuhan solicited medical supplies such as protective suits and masks from the public on January 23. Individuals, businesses and civil institutions responded. But the lockdown paralysed shipments from entering the city.

To solve the problem, Xue and his friends organised a delivery car team and recruited volunteer drivers. He coordinated with authorities to allow the team to move about the city. Volunteer drivers would meet to pick up donated supplies at highway exits and distribute them to hospitals.

"Every hospital is seeking supplies to protect their health workers. But they are also very considerate of other hospitals' needs," Xue said.

For example, Xue's team brought supplies to Wuhan Puai Hospital. However, after learning that another hospital desperately needed medical supplies, Wuhan Puai Hospital had the delivery redirected.

To help hospitals low on food, local suppliers volunteered to donate fresh vegetables. Accordingly, Xue's team organised a vegetable supply group on January 26 to relieve the food shortages challenging hospitals.

"We still face severe supply shortages. Every day, I remind every volunteer to put on protective clothing and take care of themselves well. Many of our volunteers focus on helping others so much that

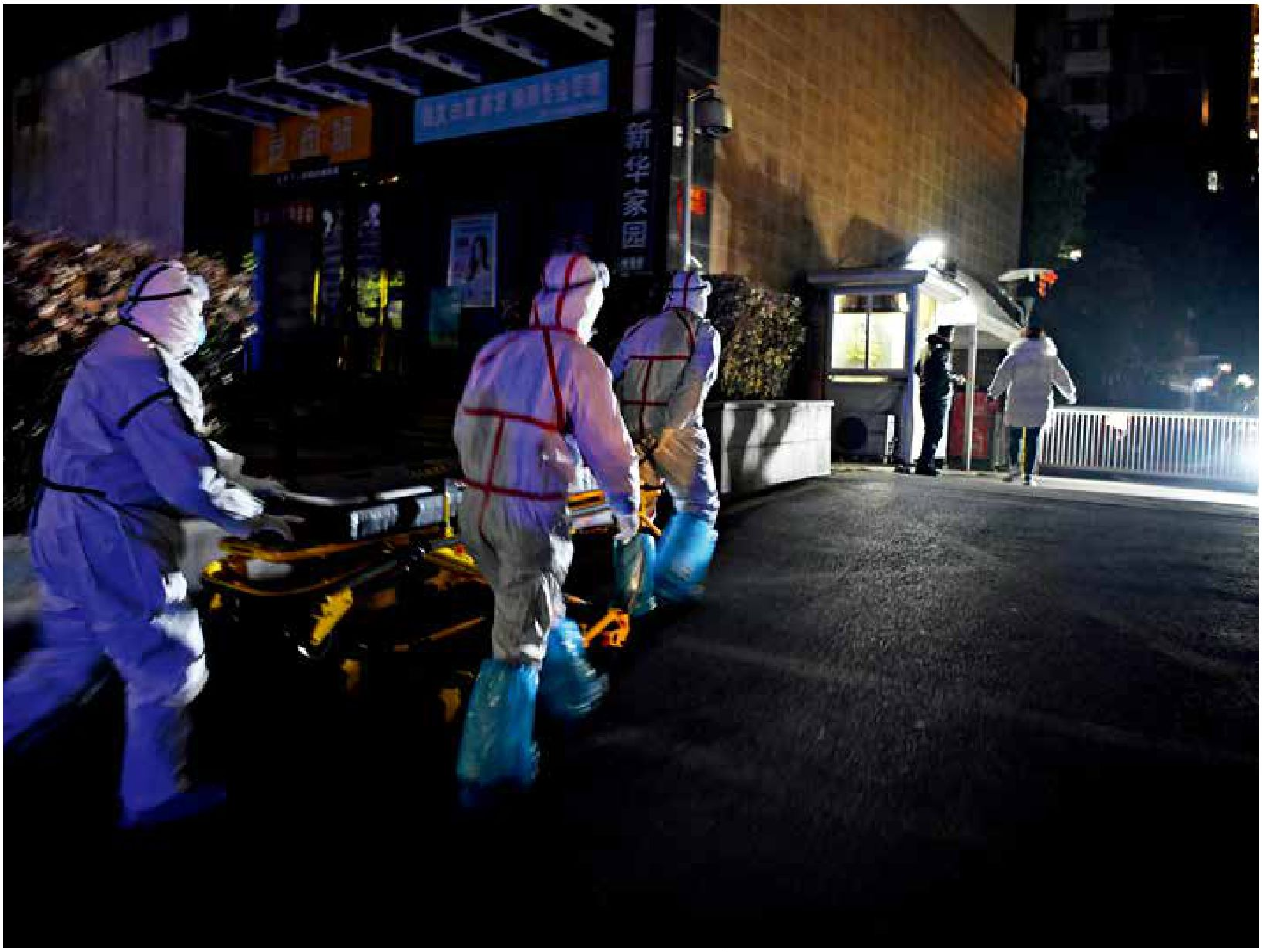


Photo by Jin Zhenqiang

Paramedics rush to get a patient at Xinhua Jiayuan Community in Wuhan on the evening of January 29

they forget to protect themselves," Xue told *ChinaReport*.

Cat Rescuer: Lao Man

More than five million people left Wuhan before the Spring Festival. With the city on lockdown indefinitely, it was still unclear when authorities would allow them to return.

As a result, tens of thousands of pets were left in flats to starve. Someone was determined to save them.

Lao Man has been rescuing Wuhan's stray cats for 13 years. In 2007, Lao opened the first cat rescue centre in Wuhan where he cares for more than 100 homeless cats.

On January 25, Lao took to WeChat offering to help people care for their left-behind cats. Within hours, hundreds of cat owners contacted him for help. So far he has received more than 1,700 requests.

Lao first coordinates with the owner to get a spare key. If there was none available, Lao gets the owner to call a locksmith.

Most of the homes he entered were a mess of overturned furniture and trash. "A cat's IQ is roughly equivalent to that of a 2-year-old child. So, stressed by hunger and anxiety, they let out their feelings," Lao told *ChinaReport*. He explained that many were dehydrated and developed fatty liver and gastrointestinal dysfunction. Some showed signs of psychological trauma.

Lao contacts cat owners through video chat from their homes. After making sure the cat was safe, he leaves a large basin of water and a one-month supply of cat food.

Some asked Lao to foster their cats. At his rescue centre, cats are kept in separate cages for safety reasons. "To prevent cross-infections, we make sure they are isolated and each has its own litter tray," he said.

Every day from 8am to 12pm, Lao drives across different districts to rescue cats. Usually he rescues 20 a day.

Lao said he could not shake the fear of driving through the city. "I have never seen Wuhan in such a state before: so empty, so quiet. You

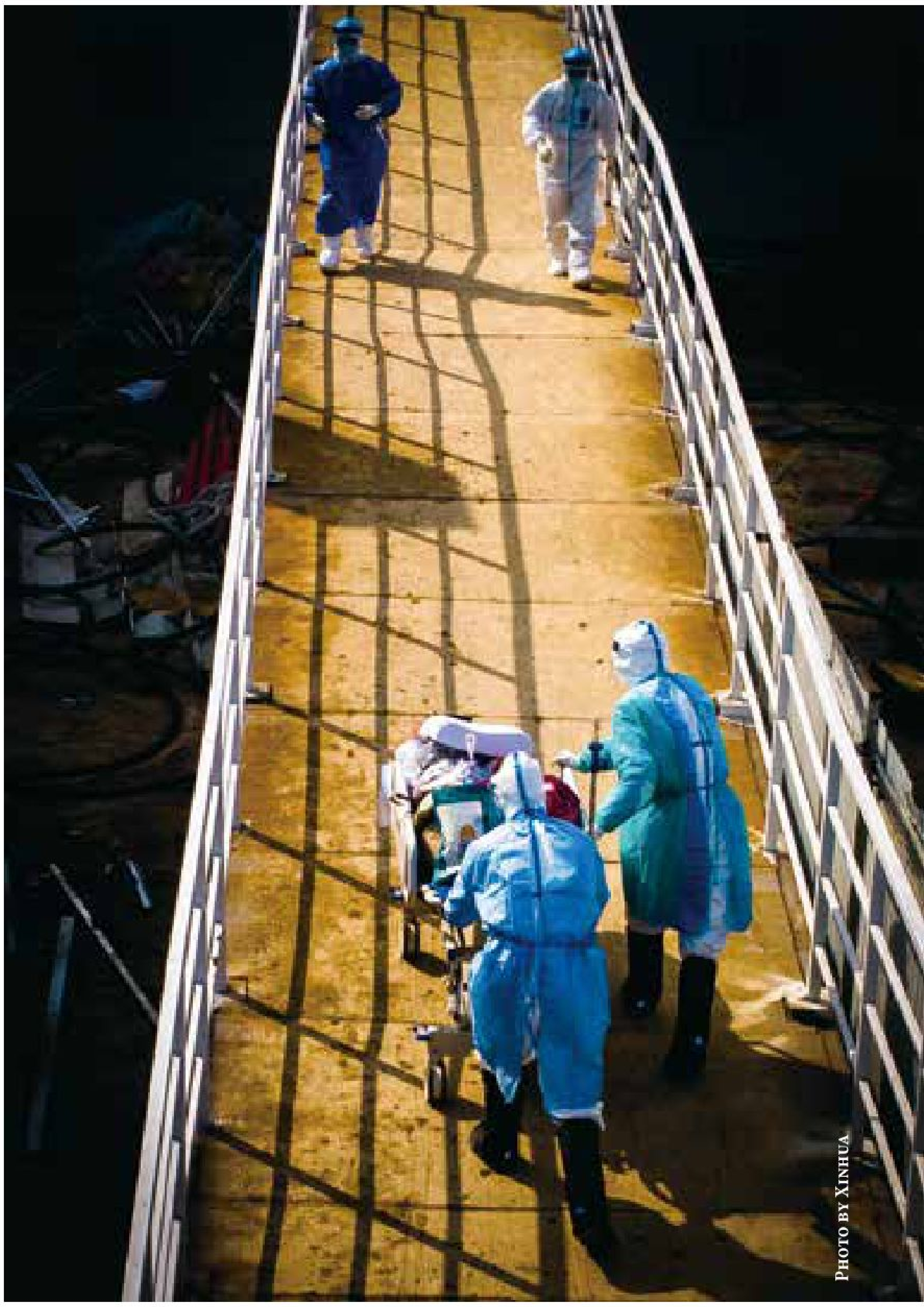


Photo by Xinhua

Health workers take the belongings of patients confirmed to have Covid-19 to the isolation wards of Huoshenshan Hospital in Wuhan on February 4

hardly see any pedestrians or cars on the street. It's like living in the world of *Resident Evil*," Lao said.

But he was determined despite the risks. "After all, cats matter to me," he said.

Psychiatrist: Yang Ying

After the lockdown, the streets of Wuhan were empty. Shops and restaurants were closed. Pedestrians were nowhere to be seen. Only a few clinics kept their doors open. Feelings of depression permeated the city.

As a psychiatrist, Yang Ying has connected with people in different corners of the city on the phone and online.

"I stayed calm and control my emotions during this period. But on the second day after the lockdown, I couldn't help crying when I woke up. Then I thought there must be a lot of other people eager for an outlet," Yang told *ChinaReport*.

On January 24, Yang and her colleagues opened the Spiritual Company Hotline to bring comfort to those in need. Their social media poster read: "We will get through this together." Hundreds of calls came in the first two weeks.

"My wife will have her baby soon. What should we do?" a husband asked Yang. He was concerned about getting an ambulance when the time came and that his wife would get infected in hospital.

Yang also recalled talking to a foreign student named Martin who said he couldn't sleep for three days. He seemed not fully aware of the epidemic, but his anxiety and nervousness had manifested physically. "Why is it so scary outside?" he asked Yang.

Some contacted her asking if she would call and check on their elderly parents who lived alone.

Over the first few days, most callers talked about their anxiety and fears over the lockdown. But recently, people have been sharing tragic experiences.

"There was a girl whose parents were both infected," Yang said. "She broke down in tears when she narrated the moment her father drove to the hospital alone after her mother was hospitalised," the psychiatrist said.

"The bitterest story came from a family in Hanyang District," Yang said. "The caller was a girl who had already been infected along with her parents, elder brother and sister-in-law. Two days ago, she contacted me in tears saying that she suspected her mother, who was already in the ICU, had died."

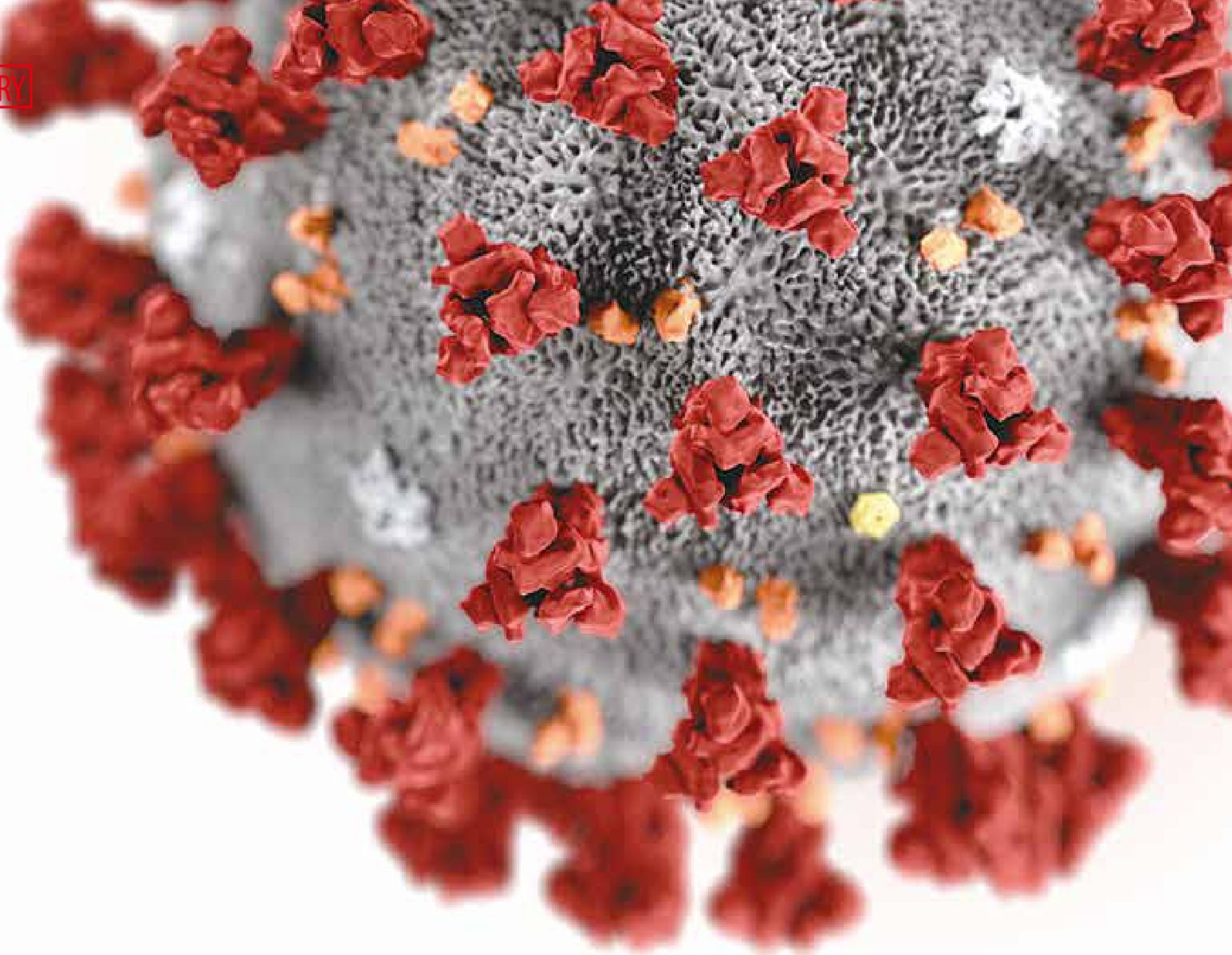
The next day Yang not only learned the girl's mother had died, but her father had become gravely ill. Yang helped the girl call an ambulance to take her father to hospital. But since the hospital lacked beds, they sent him back home. He hadn't eaten the entire day.

Yang said she remains calm while on the phone, but her emotions flood to the surface once she hangs up.

"[After each call] I always wanted to put on a protective suit and a pair of safety goggles and run in the streets and cry out to everyone how grave the situation was," she told *ChinaReport*.

With the escalating number of confirmed cases, rumours prevailing on social media and discrimination from people in other provinces, the besieged people of Wuhan feel extremely anxious, depressed and helpless.

"What worries me most is those infected and the thousands of families on the brink of falling apart because of the epidemic," she said. ★

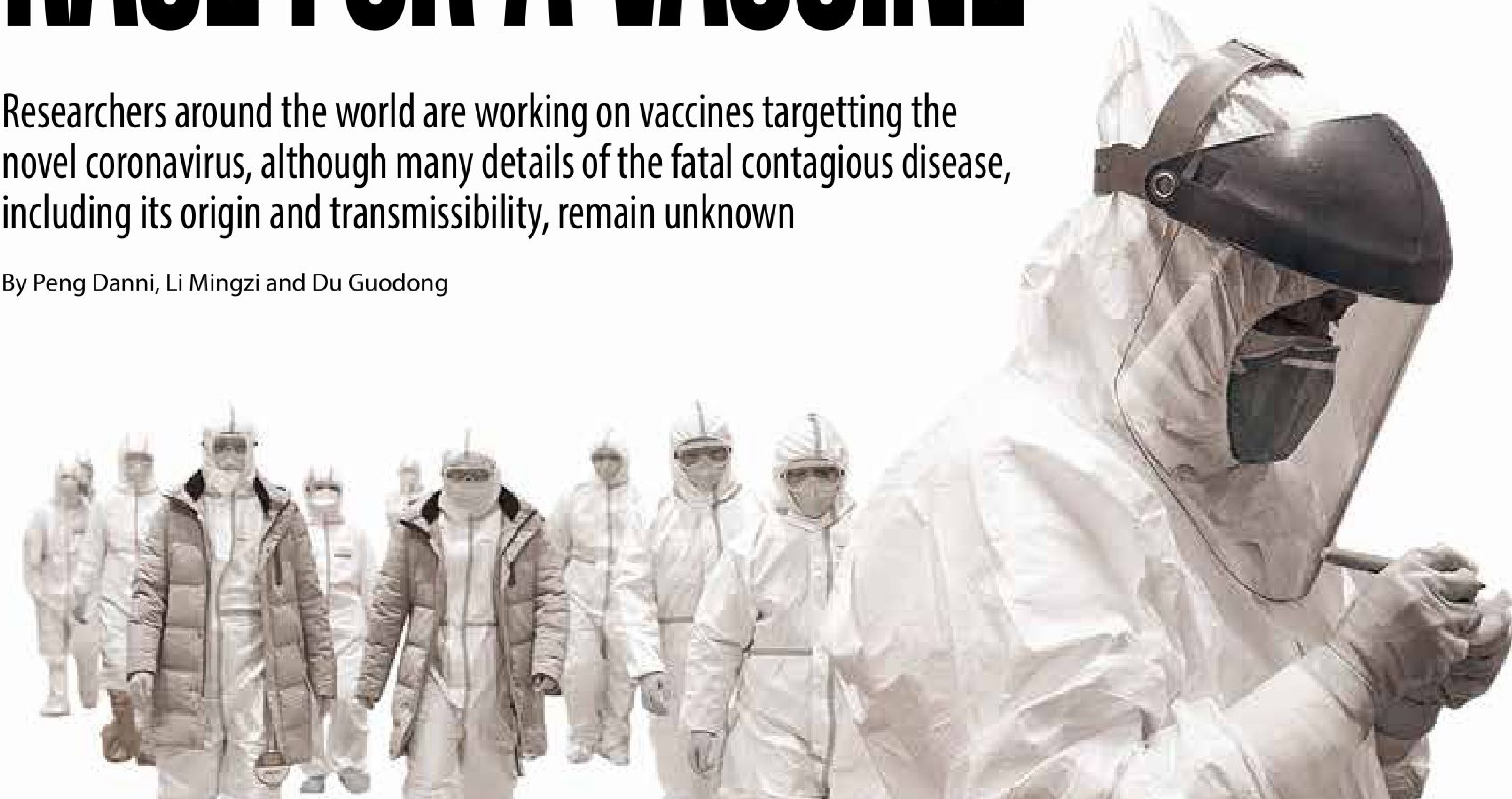


Covid-19

RACE FOR A VACCINE

Researchers around the world are working on vaccines targetting the novel coronavirus, although many details of the fatal contagious disease, including its origin and transmissibility, remain unknown

By Peng Danni, Li Mingzi and Du Guodong



"Right now, it behooves us all if someone presents with a respiratory pulmonary involvement and fever to just ask them a question. Have you been in China recently? And if so, you put a mask on the person, you put them in an isolation room, and you contact the [US] CDC."

The extract is from a podcast conversation between Dr Anthony Fauci, an expert in infectious diseases and director of the US National Institute of Allergy and Infectious Disease (NIAID), and Howard Bauchner, editor-in-chief of the Journal of the American Medical Association.

Over the past two months, a novel pneumonia with unknown etiology erupted in Wuhan in Central China's Hubei Province and garnered the attention of the world. The 2019 novel coronavirus, named SARS-CoV-2 by the World Health Organisation (WHO), is the largest known virus of its type. A coronavirus has been responsible for two other severe epidemics. In 2003, 8,098 people were infected with SARS-CoV, which caused Severe Acute Respiratory Syndrome (SARS), of whom 774 died, a death rate close to 10 percent. In 2012, Middle East Respiratory Syndrome (MERS-CoV) infected nearly 2,500 people worldwide, killing 851 people, a mortality of around 30-35 percent.

The symptoms caused by SARS-CoV-2 are similar to those caused by SARS-CoV. When the virus attacks humans, patients suffer fever, cough, fatigue and respiratory distress. Research published in the *New England Journal of Medicine* (NEJM) based on 425 patients infected with the virus showed that the novel coronavirus originated in central Wuhan at the Huanan Seafood Market before January 1, and since then person-to-person transmission spread rapidly.

On January 31, the WHO declared the coronavirus outbreak a Public Health Emergency of International Concern (PHEIC), the top alert. Many provinces across the country instantly activated their first-level public health emergency response.

"The WHO said during a morning emergency meeting [on January 31] that it wasn't necessary to declare the situation a PHEIC, adding that it will wait and observe for 10 days," Lu Shan, a professor at the University of Massachusetts Medical School, told *ChinaReport*. "That afternoon, however, the agency changed its decision. One of the main reasons was the emergence of the first person-to-person transmission in the United States, proving its high infectiousness."

Prior to the PHEIC announcement, at least 18 countries reported 98 cases of the infection including the US, Japan, Singapore, Vietnam and South Korea. As of press time, more than 77,000 people across China were infected, with 2,445 deaths, mostly in Wuhan.

'Déjà Vu'

Laurie Garrett, former senior fellow for global health at the US Council on Foreign Relations, is a policy analyst and author of *The Coming Plague: Newly Emerging Diseases in a World out of Balance* (1994). In a commentary on news channel CNN on January 24, she said that on the same date 17 years ago, she had been covering the SARS virus for several months as it spread across Asia, eventually reaching 37 countries.

"So, as I read the first reports of a c of animal-market related illnesses, with the first patient exhibiting symptoms of pneumonia as early as December 12, 2019, I had a chilling sense of déjà vu," she said.

By the end of December 2019, several medical institutions in Wuhan had already reported a number of pneumonia patients of an unknown cause. On December 27, three patients with severe symptoms were transferred to the city's Jinyintan Hospital. Three days later, researchers found they carried the same virus in. The whole process was published in the NEJM by Gao Fu, director of the Chinese Centre for Disease Control and Prevention (CDC) and other researchers on January 25, 2020.

There were six known types of coronavirus with which humans could be infected, including four common types which display low pathogenicity – that is, the ability to cause disease. But the other two types, SARS and MERS, can cause severe respiratory system diseases which are highly contagious and fatal.

When the first genetic sequence of the seventh coronavirus, SARS-CoV-2 was published, scientists discovered that it is akin to that found in bats. On January 23, Professor Shi Zhengli and her team at the Wuhan Institute of Virology found that SARS-CoV-2 is 96 percent similar to bat virus and 79.5 percent consistent with SARS. The team estimated that SARS-CoV-2 had originated in bats.

On January 29, Tan Wenjie, a researcher with the China CDC wrote in *The Lancet* that in comparison with SARS-CoV, SARS-CoV-2 has more similarity to that found in two species of bats local to Zhoushan, Zhejiang Province, with more than 88 percent sequence identity. Tan said that bats are the likely hosts of the virus and some animals sold at the Huanan Seafood Market are likely to be the intermediate host between the virus and humans. There was speculation that snakes could be an intermediate host. Now Chinese researchers have turned their attention to the pangolin, the most trafficked animal in the world and used extensively in traditional Chinese medicine.

David Robertson, a research professor and head of the University of Glasgow Centre for Virus Research, told *ChinaReport* that there is speculation on the source, but it is likely that bats played a recent role, adding that it is clear that within the coronavirus family with known genomes, all precursors to this current virus came from bats.

"This was important early in the outbreak to identify the infectious agent that caused the outbreak and to understand if multiple strains are circulating simultaneously which would potentially complicate detection," he said.

Peter Bogner, president of the Global Initiative on Sharing All Influenza Data, argued that luckily, the viruses are all similar which

Photo By CNC

Volunteers from Shanhai Qing, a public welfare rescue team, disinfect Dongxinzhuang Village in Qingdao, Shandong Province, January 29, 2020

makes it easier to target and therefore suggests the introduction into humans was recent.

"Getting into more detail would require samples from the animals at the market at the time but everything has been disposed [of] and disinfected which is the proper response to an unknown threat," he told *ChinaReport*.

Yet, in an article in *The Lancet* published on January 24, Huang Chaolin, deputy director at Jinyintan Hospital and several co-authors, argued that no epidemiological link was found between the first patient and later cases and 13 of the first 41 hospitalised patients had no link to the seafood market.

Cao Bin, an expert in respiratory infections at the China-Japan Friendship Hospital who is the corresponding author of the article wrote in an email to *Science Insider* that "it seems clear that the seafood market is not the only origin of the virus and to be honest, we still do not know where the virus came from now."

Infection Rates

When the Chinese government announced for the first time that 62 people were infected with SARS-CoV-2 on January 18, medical researchers at Imperial College London and Hong Kong University estimated that probably 4,000 people had already been infected.

Garrett, in her CNN commentary, wrote that more people would likely be infected by the new coronavirus than by SARS-CoV in 2002. Four days later, official Chinese statistics showed that nearly 6,000 people nationwide were infected, more than the 5,327 cases of SARS in the Chinese mainland. It was just a month after the Wuhan Health Commission made public the epidemic.

According to a paper titled "Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia" published in the NEJM by researchers from the CDC, Hubei Centre for Diseases Control and Prevention and Hong Kong University on January 29, the R0 (pronounced R-zero, which measures virus spread) is about 2.2, meaning that each infected patient on average could pass on the disease to 2.2 persons. The higher the R0, the more infectious the disease. If the R0 is higher than 1, it will keep spreading, if lower than 1, the disease will probably peter out.

Benjamin Cowling, an infectious disease professor at the Hong Kong University Faculty of Medicine, told *ChinaReport* that there are two aspects to the severity of a virus. The first is the clinical manifestation including the risks of hospitalisation, the proportion of critical patients and the mortality. From this perspective, he said, there was not enough adequate information and he estimated that the risk of hospitalised patients dying is 14 percent. The second aspect is population impact, the effect on economies and society. Cowling said he suspected that societies heavily impacted by the virus could take years to recover from the physical and mental health aspects of the measures that have been taken to control the virus.

According to China's National Health Commission, the mortality rate with a definite diagnosis of SARS-CoV-2 in China is on average 2.1 percent and the mortality rate in Wuhan is 4.9 percent.

"We know there are many mild infections with SARS-CoV-2, which is quite different to SARS-CoV. We don't know the ratio of mild to severe cases because most mild cases are not being tested and laboratory confirmed," Cowling said.

In the opinion of Zhang Wenhong, director of the infectious disease department of Huashan Hospital of Fudan University, 15 percent of patients diagnosed in Shanghai were critical, and the death rate is noticeably lower than for SARS. The critical patients are mainly elderly people who have underlying conditions such as diabetes, hypertension and other chronic conditions.

However, a large number of less severely affected patients and even those without any symptoms can be possible sources of infection. According to an article in the NEJM by Vincent J. Munster, a virus expert at the US National Institutes for Health and co-researchers titled "A Novel Coronavirus Emerging in China – Key Questions for Impact Assessment," if infection does not cause a serious disease, infected people probably will not end up in healthcare centres. Instead, they will go to work and travel, thereby potentially spreading the virus to their contacts, possibly even internationally.

Milder cases and the transmissibility of the virus is the biggest difference between SARS-CoV-2 and SARS-CoV which currently poses the main difficulty of control. A microbiologist told our reporter on condition of anonymity that when patients were diagnosed with SARS, it was highly infectious only after patients displayed symptoms such as fever and pneumonia. SARS-CoV-2 has an incubation period of up to 14 days and there are some asymptomatic carriers.

Photo By Yang Shuhuai

Scientists use nucleic acid testing on samples from patients suspected to be suffering from Covid-19, caused by SARS-CoV-2. The results should be delivered within 30 minutes

According to a study led by Zhong Nanshan, an expert epidemiologist and leader of the high-level expert group under China's NHC to combat SARS-CoV-2, the incubation period could be up to 24 days and the existence of super spreaders cannot be ruled out. The study, published on online platform for medical researchers medRxiv on February 8, is based on a retrospective study of the clinical characteristics of 1,099 patients (as of January 29) confirmed with the virus.

"These patients are invisible in crowds, difficult to be detected and they are unwilling to see a doctor," Tong Zhaohui, deputy director of Beijing's Chaoyang Hospital, told *ChinaReport*. "It's hard to solve. Public awareness is necessary to make them realise the danger and to protect themselves and their family. It's also a social responsibility."

Vaccine Development

A 35-year-old man who returned to the US on January 15 after a trip to Wuhan fell ill with the coronavirus, the first person to be diagnosed in the country. When his condition worsened after seven days of treatment, doctors prescribed antiviral drug Remdesivir, developed by US firm Gilead Sciences, even though it was not ratified by the nation's drug agency. Two days later, the patient's condition improved. Details of the treatment were published in the NEJM on January 31.

Remdesivir was developed by Gilead mainly to treat Ebola and the Marburg virus, although it later showed antiviral activity against SARS and MERS in cell and animal experiments. It was approved by the Chinese Ministry of Science and Technology, the NHC and the National Medical Products Administration for a clinical trial on February 6, according to a report by the official Xinhua News Agency.

A total of 761 coronavirus patients in several hospitals in Wuhan were enrolled for the first phase of trials, led by the China-Japan Friendship Hospital and the Institute of Materia Medica under the Chinese Academy of Medical Sciences. Remdesivir has been administered to 453 critical patients and 308 less severe patients, according to Cao Bin, head of the drug's clinical trial programme at a training and kick-off meeting in Wuhan Jinyintan Hospital on February 5.

On January 26, Xu Wenbo, director of the Institute of Viral Diseases of the China CDC announced it had started research into vaccines. The CDC has already isolated the coronavirus and is identifying its seed strain. Meanwhile, overseas institutions are also racing against time to develop a vaccine. But researchers cautioned that developing a vaccine, even if trials are fast-tracked, will not be a quick process.

Zhang Linqi, a professor at the Tsinghua University School of Medicine, led a research team to develop vaccines targetting the MERS-CoV virus. His team has stepped up vaccine development to address the novel coronavirus. He told our reporter that it is easier to develop coronavirus vaccines than HIV vaccines and it is urgent to extract the antibodies of the virus.

During the 2002-2003 SARS outbreak, it took scientists more than 20 months from obtaining the gene sequence to vaccine trials on humans. But there are no vaccines for SARS available now.

Anthony Fauci said since the outbreak of SARS, the R&D time of vaccines targetting a coronavirus has largely been reduced. He expects to start phase 1 trials for safety in about 20 people within three months. However, he added, that does not mean a vaccine will be available for use and distribution within three months.

"It will take three additional months to get results and then we proceed to phase 2 in a larger number of people. Even if we get emergency use authorisation, it is highly unlikely that a vaccine will be available for at least one year," he told *ChinaReport*.

Peter Hotez, a scientist at Baylor College of Medicine in Houston and his team developed a vaccine to prevent SARS, which never made it to human trials. The receptor-binding domains of both SARS-CoV and SARS-CoV-2 bind to the same host ACE2 receptor (an enzyme which is a host cell receptor responsible for mediating infection) found in human lungs, and the two viruses are 80 percent similar in their genetic code. His team is testing if the findings will contribute to the development of vaccines for the novel coronavirus and it is working with researchers from Fudan University in Shanghai.

"The challenge is that even if we show our SARS vaccine cross-protects against the novel coronavirus in the laboratory we would still need funding to conduct safety testing and clinical trials in humans," he told *ChinaReport*. "Therefore we're still several months away from having a vaccine." ★

武汉市金银潭医院

Photo By Chen Zhuo

Doctor Tu Shengjin and nurse Cao Shan sleep in a vehicle parked at Jinyintan Hospital in Wuhan, Hubei Province, February 16, 2020. The couple works in an isolation ward for critical patients and they had slept in the vehicle for the previous 23 days

Weng Wenjing (second right), Party chief of Xichenghao Community and volunteers promote epidemic prevention in a street in Wuhan, February 7, 2020

Photo By Xinhua

Residents queue to buy face masks and ethyl alcohol at a chemist in Wuhan, Hubei Province, February 1, 2020

Photo By Qiu Yan

Military transport aircraft prepare to take off from Shanghai Hongqiao Airport on February 17, 2020. It was the fourth mission to send medical staff and relief supplies to Wuhan, Hubei Province

Photo By Wei Lai

Covid-19

LETHAL TASTES

The coronavirus outbreak highlights the urgency of banning the trade in wildlife and preventing endangered creatures from ending up on the dinner table, as well as the need to revise the Wildlife Protection Law

By Huang Xiaoguang

Liu Yidan, a wildlife protection volunteer, had already received a tipoff about illegal practices at the Huanan Seafood Market in Wuhan, Hubei Province, in December 2019, just as the first reports of a new SARS-like disease were starting to trickle out.

Lots of exotic wild animals were being illegally sold as food, the informer told her. Liu was unable to go to Wuhan to see for herself at the time. But other online posts were accusing the market of trading in many kinds of animals, including dogs and cats, as well as more exotic species such as pheasants, snakes, marmots, sika deer and monkeys, all under the guise of selling seafood.

But on December 31 when *ChinaReport* arrived at the wet market, it was business as usual, despite reports that a "pneumonia from an unknown cause" was already infecting residents in Wuhan. The outbreak reportedly centered on people who had direct contact with the market. Yet stallholders insisted to the reporters that there were no live animals in the market except seafood. As of press time, more than 2,400 people have died and more than 77,000 have been diagnosed with Covid-19. The majority of the earliest confirmed cases reportedly involved direct contact with the market.

On January 22, Gao Fu, director of the Chinese Centre for Disease Control and Prevention (CDC), said at a press conference that the novel coronavirus was suspected of originating at the Huanan Seafood Market and wild animals played a key role. Zhong Nanshan, a senior specialist from the National Health Commission of China, said in a China Central Television (CCTV) interview that the source of the virus might be wild animals like bamboo rats or badgers. Other Chinese research has since pointed to pangolins, the most trafficked animal in the world, and widely used in traditional Chinese medicine (TCM), according to media reports.

There has been a massive public backlash against China's wildlife trade and the habits of some who eat wild animals, whether legally or illegally traded, although some scientists have claimed the seafood market might not be the only source of the virus, officially called SARS-CoV-2. Volunteers like Liu, who have long been battling the poaching and trading of wild animals, say that authorities should act quickly to fast-track legislation that puts an end to illegal hunting and sales of exotic species for good.

As soon as the extent of the problem became clear, authorities banned the trade and transportation of farmed wildlife on January 26. Conservationists and the public lauded the ban, although it was announced as only temporary, until the crisis was over. Many said the ban was only a stopgap measure, and the root of the problem lies in China's Wildlife Protection Law. Some accused the law of putting more emphasis on the legal utilisation of wild animals than their protection, which means it fails to effectively crack down on illegal hunting and trade as the legal trade provides cover for those that engage in illegal practices. There is wide consensus that this fatal outbreak makes it is urgent to revise the law.

A poll by the Peking University Centre for Nature Society on January 28 had attracted nearly 93,000 participants by February 12, with 97 percent of respondents "strongly" against eating wild animals, nearly 78 percent against using wildlife products including fur, bone and medicine, and 77 percent against the domestication of wildlife on farms, the Xinhua News Agency reported.

"Epidemic diseases originate from wild animals and once they occur, are hard to control and have severe consequences. The Wildlife Protection Law should be revised to strictly prohibit hunting and eating wild animals to prevent such diseases," Liu Xiaoyu, an expert from the CDC had already warned.

On February 10, Wang Ruihe, an official with the Legislative Affairs Commission of the National People's Congress (NPC) Standing Committee, said at a press conference in Beijing that the central

Photo by Publicity Department of Jiangcheng county, Yunnan Province

Police in Jiangcheng county, Yunnan Province seized several macaques up for sale and slaughter on October 27, 2014

顺源水产
批发
甲鱼
牛蛙
乌龟

Photo by Peng Danni

Stalls at the Huanan Seafood Market in Wuhan, Hubei Province were open as usual on December 31, 2019

government intends to make efforts to accelerate the amendment of laws on animal epidemic prevention and other areas, the Xinhua News Agency reported. Wang stressed the need to improve laws and regulations related to wildlife, tighten supervision over law enforcement and toughen the crackdown on wildlife trafficking.

Dubious Trade

After Huanan Seafood Market was finally closed on January 1, Chinese epidemiologists conducted sample testing of aquatic shop owners. The trade in wildlife at the market, despite the stallholders' denials, was highly suspected to be related to the outbreak. On January 26, the CDC said it had found new coronavirus nucleic acids in 33 out of the 585 environmental samples from the market and successfully isolated the virus from the samples, hinting that the virus originated from wild animals sold in the market.

Huanan Seafood Market, one of the largest aquatic product wholesale markets in Central China, has attracted numerous complaints from nearby residents for its stinking environment full of garbage and sewage. They were ignored. In 2004, not long after the SARS outbreak of 2002-3, the market already aroused controversy over selling masked palm civets, hosts of the SARS virus. Official data attributes 774 deaths to SARS, with 8,098 infected worldwide. A netizen nicknamed "Malaxiaolongxia" posted on Sina Weibo that he was a middle school student then, and passed the market every day. There he saw an array of wild animals for sale, including crocodiles, pheasants, masked palm civets, peacocks and others he could not name, and "most of them were alive."

Despite complaints dating back over a decade, the wildlife business seemed unaffected. "The wildlife dealers could do this business in the name of seafood. They usually have stable underground channels for sales," said Tian Jiangming (pseudonym), who has devoted himself to wildlife protection for years. He said three of the eight major global bird migration routes pass China, and Chinese bird hunters prey on all of them. Many of their illegal catches found their way to the Huanan Seafood Market.

The wild animals traded there go far beyond birds. A widely circulated price list of a shop from the market offers nearly 100 kinds of wild animals, each having a price. The shop, which opened in 2004, again in the wake of the SARS epidemic, promised that these animals all could be "freshly killed."

Statistics released by the National Forestry and Grassland Administration (NFGA) in 2018 showed that in Hubei Province, there were some 500 companies engaged in the captive breeding of wild animals, involving more than 60 species, with an annual yield totalling 300 million yuan (US$43m).

In Wuhan, it is easy to find restaurants with wild animals offered as specialties.

Yue Hua, a volunteer for a bird protection NGO, visited Wuhan in 2019 and saw many restaurants selling wild animals in the downtown area. "The fact that they can sell game dishes in the downtown reflects that it is common to eat wild animals in the local area and the supervision is rather slack," Yue told *ChinaReport*.

Unlearned Lessons

The Covid-19 outbreak has wide parallels with the SARS epidemic. Most of the first patients diagnosed with SARS were found to have had direct contact with wild animals. After scientists isolated the SARS virus from masked palm civets, authorities in Guangdong Province where the virus was thought to have originated culled all masked palm civets in wildlife markets, banned the wildlife trade and closed the markets.

Thirteen years later, a team from the Wuhan Institute of Virology under the Chinese Academy of Sciences led by Shi Zhengli discovered the same virus in bats in Yunnan Province, pinpointing the origin even further. Civets were an intermediate host, with bats regarded as the source, or natural host, of SARS-related viruses. Bats are believed to be the most likely reservoir of many lethal viruses in the past 50 years.

These viruses are described as zoonotic – that is they can jump the species barrier, passing from animal to animal and on to humans. These include Ebola, the Nipah virus, which spreads from fruit bats and pigs, the Hendra, a rare zoonotic disease also deriving from bats, and Middle East Respiratory Syndrome (MERS-CoV), which likely comes from camels. Bats are likely the original source of Covid-19, according to Chinese scientists.

In China, bats, along with many other species, are used in traditional Chinese medicine (TCM.) Bats are seen as being helpful to treat eye problems and coughs. They are also eaten.

Most wild animal eaters are evidently unaware that the animals are repositories for pathogens in nature. Qin Chuan, director of the Institute of Laboratory Animal Sciences at the Chinese Academy of Medical Science, wrote in an article published in the journal *Laboratory Animal and Comparative Medicine* in 2008, that since 2001, over 70 percent of the 1,100 infectious diseases with global impact confirmed by the WHO are zoonotic. The article pointed out that bats, rats, birds, snakes, frogs and shellfish are all common reservoirs for emerging infectious diseases.

"People have never learned the lesson that they shouldn't eat wild animals," said Gao Xi, a history professor at the Shanghai-based Fudan University. In 1988, eating blood clams was found to have caused a Hepatitis A outbreak in Shanghai that infected about 300,000 people. In 2019, a couple was poisoned to death after eating half-cooked internal organs of marmots in Mongolia.

到处都是人
我们去哪？
Photo by Xinhua

Students from Hubei University raise awareness of wildlife protection at Jiufeng Forest Zoo in Wuhan, Hubei Province

Following the SARS outbreak, Guangdong killed tens of thousands of masked palm civets for safety concerns. But the ban lasted only a while. In August 2004, just three months after the SARS crisis ended, the NFGA released a list of 54 kinds of terrestrial wild animals which contended that the taming and breeding technology were mature enough to support their commercial utilisation. Masked palm civets were among them.

Some memories were short. Not long after the SARS outbreak ended in June 2003, wild animals were back on the menu. In 2004, there were more than 16,000 breeding farms for wild animals, worth an annual 20 billion yuan (US$2.9b), reported the *Guangming Daily*.

The market in Wuhan is an epitome of the enthusiasm for eating wild animals nationwide. Masked palm civets, bats, bamboo rats, pangolins and porcupines were the most searched animals for eating in the past 10 years, according to a Covid-19-related big data report published by Chinese tech giant Baidu on January 31.

And tastes change from place to place. In Guangdong, for example, people prefer bamboo rats, rice birds and pangolins, believing that pangolin meat helps stimulate breast milk production. In Ganzhou, Jiangxi Province, people like dried meat from wild birds, saying soup made of the meat is nutritious and good for newborn babies. In northeastern China, bear's paw, roe deer and wild boars are more common on the dinner table.

In many areas, particularly those with a tradition of eating wildlife, it is believed that game meat is more delicious or nutritious, with particular medical functions. But it is also common for people to eat wild animals simply driven by vanity, seeing it as a symbol of privilege to show off their wealth.

Regulation Loopholes

People are now pushing for changes to China's Wildlife Protection Law, which many experts regard as not harsh enough to curb the chaos in wildlife hunting, breeding and trade that helps lead wild animals to the nation's dinner tables.

The current law mainly was revised in 2016, the draft of which once aroused controversy in legal and wildlife protection circles. Many believed the draft deemed wild animals as a kind of economic resource and acknowledged the legitimacy of this trade. According to utilisation articles of the law, whether wild animals are under State protection or not, they all can be hunted, tamed or exploited after certain regulated requirements are met, which includes gaining licences from authorities. In recent years, breeding wild animals that are not under State protection but have biological, scientific and economic value is particularly encouraged in some places for economic output.

But these licences sometimes are mere cover for illegal hunting and trade. The wild animals, whether gained through poaching or other illegal means, become "legalised" once they are put into the hands of people with licences.

"On the one hand, it [the law] seems to have more strict requirements for the sake of protection. On the other, it marks a step forward in allowing the commercial use of wildlife. The balance is maintained only by the vague and fragile line of legality," Liang Zhiping, director of the Hongfan Institute of Legal & Economic Studies, said in an article published in December 2016 which offered a critical analysis of loopholes in the Wildlife Protection Law.

In China, game meats are more popular in the south, so wild animals are mainly transported from north to south. The wild animals poached in the north, where the locals consume little, are usually sent to the south, mainly to Guangdong which is the distribution centre for wild animals, conservation volunteers told *ChinaReport*.

A nationwide profit chain has formed surrounding the resale of poached animals, according to an article published on the WeChat account of wildlife protection NGO the Beijing Prairie League Environmental Protection Promotion Centre on January 22. Poachers sell the animals to middle men, who sell them to bigger buyers. The big buyers usually have licences to breed wild animals and thus can whitewash the illegally hunted or purchased animals and then send them to markets openly.

"The law encourages people to breed and utilise, but many wild animals can't be bred, and some are bred at huge cost. Take bar-headed geese. They do not lay eggs until being bred for four or five years and the production is low. So bar-headed geese [eggs] are usually stolen from the wild," Liu Yidan said, adding that the criminality is all to disguise the source of wild animals sold in markets.

The protection of wild animals not under State protection is weak, which puts volunteers engaged in wildlife protection in awkward situations. In January 2017, thanks to Liu's activism, nearly 900 wild animals were found in a market in Tianjin, including wild rabbits, wild ducks and wild leopard cats. But the dealers involved were not held accountable, as the seized animals come under the category of wild animals valuable for biology, scientific research and the economy but do not come under special State protection.

There are relatively strict regulations about animals under special State protection, but for wild animals such as masked palm civets, badgers and hedgehogs which are listed, illegal hunting and [non-compliant behaviour] in breeding and operations are very severe, said Lü Zhi, a conservation biologist from Peking University, in an interview with the *Worker's Daily* in mid-February.

The deadly outbreak has prompted many to say it is past time to revise the law. "Generally speaking, the threshold for breeding wild animals should be very high. And I strongly oppose eating them," Lü told *ChinaReport*. She said that eating wildlife is an outdated habit that society should abandon.

According to the current law, eating wild animals under State protection is prohibited. Lü believes the ban should expand to all wild animals, advocating a "complete ban on eating wild animals."

"In picking a host, pathogens don't care if an animal is protected or not. Ironically, animals that are not under special State protection, including masked palm civets, bats and hedgehogs, have become natural or intermediate hosts for diseases that plague both animals and human beings," Lü said.

On January 23, initiated by Lü, 19 academicians and scholars from universities and research institutes signed a letter calling on lawmakers to make quick amendments to the Wildlife Protection Law and fit public health considerations into articles regarding wild animal utilisation.

"Changes in the law will help regulate and guide people's behaviour as the bottom line, though real changes have to come from changes in attitude," Lü said. She believes that from SARS-CoV to SARS-CoV-2, nature is continuing to remind human society of the importance of rebuilding reverence for nature and keeping the balance between human beings and nature, and between human beings, wild animals and pathogens. "Otherwise, the health risk will be beyond measure," she said. ★

Covid-19

A NOVEL APPROACH TO THE CORONAVIRUS?

The best way to take on an unknown invader is to beef up defences, according to traditional Chinese medicine

By Dr Chen Zanyu

The outbreak of the novel coronavirus, now formally known as Covid-19, in Wuhan, Central China's Hubei Province, has presented an unprecedented challenge to health authorities all over the world. From SARS, MERS to Covid-19, we humans are facing more dangerous unknowns than ever before.

Each virus pops up seemingly out of nowhere and causes mass illness and death, while the best that medical professionals can do is work tirelessly to limit its damage. It's a war without borders, and we often don't know where our enemies come from – or even who they really are.

While top scientists work very hard for a cure and a vaccine to prevent Covid-19, it does not cease to mutate and evolve.

Perhaps it's time we considered a different approach.

Science has known about viruses for roughly 200 years. It's possible that they were here long before we humans evolved on Earth and they will stick around whether we like it or not. While pervasive, viruses are not intentionally lethal to humans. Perhaps there are ways we could live with them in harmony that can also help our immune systems protect us.

The foundation of traditional Chinese medicine (TCM) is the concept of *Tian Ren Xiang Ying* (which translates to "the universe and humans reflect and link with each other"). Humankind is an integral part of the vast and mighty universe. We may not be able to see and detect everything in nature, but we can feel and are affected by it. We take it for granted as long as we function normally, but are shocked and often suffer when we don't.

Defence and Harmony

In the thousands of years of TCM history, two major pandemics spurred the development of TCM: *Shang han* (or "cold damage diseases") gripped large parts of what is now China from around the 1st century alongside prolonged conflicts, wars, famine, cold climate spells and social unrest. *Shang han* claimed countless lives and brought the Eastern Han Dynasty (25-220) to an end. One of the most important TCM systems, *yin* and *yang* energy, was developed during that time has since saved hundreds of millions of lives.

The *shang han* system designates six defensive channels to identify any *yang qi* (vital energy or life force) impaired by cold. As *yang* is responsible for the defence system and warming of the body, it is located in the outer and upper parts of the body where defensive battles are more likely to occur. The symptoms and pulse changes of each channel are unique and traceable, and formulae for the six channels are applied to remedy the dysfunction of each. The cold has nowhere to hide.

Of course, ancient TCM practitioners could not see the physical causes of the illnesses, viruses, with their naked eye. But they could feel, trace and anticipate where it would attack. Through this, they were able to minimise or prevent harm.

Instead, TCM diagnoses a disharmony of cold (*han*) as the carrier (which could be seen as bacteria, protozoa, mycoplasmas, yeasts or viruses) that attacks *yang qi*, one of the most important aspects of our defence system (roughly equivalent to the immune system). The symptoms of impaired *yang qi* in different channels and organs signal which TCM methods and formulae to apply for treatment.

TCM sees disharmony of cold as "atmospheric excess" that requires increasing *yang* or warming up particular organs or channels to regain the body's natural balance. The defending *qi* will get rid of the pathogens without harming the body or developing drug resistances.

This approach may not sound very impressive as modern medicine seems to do much better without relying on TCM. Medications are prescribed to target and kill pathogens, dangerous viruses or other microorganisms. But pharmaceuticals often affect our immune systems as well.

Debates and Analyses

There have been debates and disputes that touch on the credibility of TCM.

Some ask if TCM cannot distinguish cold from pandemics, how can the *liu yin*, or "six atmospheric excesses," cover such a variety of microorganisms?

The answer is that it can, just as the naked eye can distinguish a broad spectrum of colours made from just three primary ones.

TCM diagnoses Covid-19 symptoms as a "dampness attack combined with cold or heat" and "accumulated turbidity." Like the primary colours, these are the basic symptoms that need to be addressed when there is a *liu yin* disharmony.

The Lancet published a paper on January 24 titled "Clinical features of patients infected with Covid-19 in Wuhan, China." Based on the initial 41 cases, fever and cough symptoms are common, which indicates for TCM that the virus attacks the lung channel, triggers strong *yang* defence and produces excessive heat. Reports from Wuhan note that fevers are generally under 38 C. Some patients don't even exhibit high temperatures, making it difficult to monitor the susceptible population.

In TCM, however, this indicates the *yang* heat is not strong. The pathogen's properties are more likely accumulated dampness, which is further signalled by digestive issues and diarrhoea. Wuhan is a city criss-crossed with rivers and lakes. With water covering a quarter of its total area, Wuhan has a high degree of dampness.

The dry cough and consequent dyspnoea and acute cardiac injury of some Covid-19 cases also indicate dryness (or *yin* exhaustion caused by lifestyle or loss of bodily fluid due to chronic heat) and cold properties. The dampness, cold and dryness accumulate and attack the body, causing the immune system to break down and the disease to take hold.

The complex *yin-yang* nature of pathogens can exceed the effectiveness of the human immune system and medical treatment, causing a pandemic outbreak.

Questions have also been raised as to why TCM cannot find universal cures like modern medicine can. Why do TCM doctors always talk about individual cases? Don't they know that individual cases do not count for much in modern medicine?

Dr Chen Zanyu

Well, I would say TCM is both universal and individual. While it has been developed without the benefit of big data, it has been leading the way in personalised medicine. TCM has helped produce universal cures like Artemisinin and Tamiflu for malaria and some types of influenza. Within China, many pharmaceuticals have been developed with the help of TCM practices, and more will come in the future.

But viruses are evolving all the time and patients' personal health and environmental conditions vary. TCM's holistic approach has a better chance of getting on top of the viruses and treating the patient as a complete entity. Aren't those the aims of personalised treatment in modern medicine?

Future developments may not take the form of TCM as we know it today. But as society seeks an alternative holistic solution, these developments may integrate Western medicine with Chinese wisdom, TCM's rich history, big data and artificial intelligence.

Treating the patient as an individual has been the best method of all, and in the current fight against Covid-19, solutions offered by TCM should not be undervalued.★

Dr Chen Zanyu, a medical graduate from China, is president of the Federation of TCM Practitioners in the UK and chief editor of the Journal of Chinese Medicine in the UK

Sinkholes

UNDERGROUND MENACE

After a sinkhole in Xining swallowed a bus and killed 10 passersby, attention has been drawn again to the prevalent issue of urban land subsidence

By Yang Zhijie

Photo by CNS

A rescue team helps passengers escape a sinking bus in Xining on the night of January 13

Ma Chao, 36, did not expect that waiting to board a bus would result in a near-fatal accident. Ma, who lives in Xining, western China's Qinghai Province, was lining up for the No.17 outside the city's Red Cross Hospital after visiting his ill son, he told *ChinaReport*.

It was 5:36 pm when the bus pulled up. Ma was about to board at the front, when there was a loud crack and the ground gave way beneath his feet. Ma, along with the bus, passengers and other pedestrians were swallowed by a sinkhole. Although people rushed to the rescue immediately, nine people died, and one is missing, presumed dead. Ma counts himself lucky to have survived.

Huge Sinkhole

The Xining sinkhole is the last and worst of a spate of similar incidents, caused by land subsidence, either by natural erosion or by shoddy underground construction.

Footage shot by a surveillance camera which went viral online showed the bus plunging into the sinkhole. People at the front could not escape. The hole continued to enlarge, swallowing a nearby lamppost. Some bystanders, including a child who went back to try to rescue people, disappeared into the hole. Then there was an explosion.

Ma said he had not noticed anything unusual before the incident. Talking to *ChinaReport* on January 14, he said he plunged even faster than the bus. "There was a lot of water in the hole already, and I suppose the underground pipeline system must have been damaged earlier, since it was almost flooded," he said.

People were terrified and ran away as fast as they could. Retired army soldier Sun Wanhong and his family were passing by and saw a survivor clinging to the edge of the hole, crying for help. Sun and a few others who went to their aid were also engulfed by the spreading sinkhole.

Sun said the explosion happened right after he fell. But, he told *ChinaReport*, it was deep in the hole and so they were not injured.

"People including me started to try to rescue ourselves," Sun said. They first helped drag out a teenager and two children buried in the mud. Then survivors tried to find a stable place to stand, waiting for professional rescuers to arrive. They came around 10 minutes after the incident with diggers and other equipment to excavate the ground around the collapse site. Mud-covered survivors were hauled out of the hole by rope. Some of the bus passengers were able to clamber through a window before being pulled to safety. Chen Ying, a grocery store owner near the bus station, saw everything. "There weren't many passengers on board. It was passersby outside the bus who mainly got injured," Chen told the reporter. According to a State media report that night, all the bus passengers were accounted for when the bus was lifted from the hole.

Rescue crews worked the whole night to search and help trapped people, most of whom were rescued from the collapsed 80-square-metre pit in the street. After a search and rescue operation lasting more than 80 hours, 17 injured people were rescued and the bodies of nine victims recovered. One woman remains missing.

At a press conference on January 17, Xining government said that all efforts had been made to try to find the missing woman, but due to the unstable geological situation which could threaten nearby buildings, the search had to be called off.

By February 2, 20 days after the incident, no official announcement of the exact cause of the sinkhole had been made.

Widespread Issue

A preliminary investigation into the Xining sinkhole indicates it could have been caused by broken underground water pipelines. In recent decades, there have been many similar incidents. It is feared that the Xining sinkhole is the tip of the iceberg when it comes to the danger posed by land subsidence in urban areas.

According to statistics from the Shenzhen Geology Environment Monitoring Centre, Guangdong Province, from 2013 to 2017, in Shenzhen alone, there were more than a thousand incidents of subsidence.

"Land subsidence has happened a lot in recent years," said Lei Chengbin, a senior engineer from the Shenzhen monitoring centre. Lei found that in some 400 cases of land subsidence, 50 to 60 percent of the total incidents from 2013 to 2017 were caused by broken underground pipes. These pipes, most of which were installed after the 1980s, have a life cycle of 30-40 years. Additionally, the high density of underground construction has caused damage to the pipeline network.

On December 1, 2019, at the construction site of Shahe subway station in Guangzhou, Guangdong Province, land subsidence trapped three workers, who did not survive. On December 12, in Xiamen, Fujian Province, a 500-square-metre sinkhole opened up in Siming District, swallowing two cars, including a taxi. The occupants were able to climb out. Both were caused by subway construction. Yet another sinkhole, in Hangzhou, Zhejiang Province, on August 28, 2019 was caused by a water leak at the construction site of a new subway line. No casualties were reported. On August 23, 2016, there were three land subsidence incidents in Lanzhou, Gansu Province. There were no deaths.

China is not the only country to be affected. In Guatemala City, Guatemala, a sinkhole in 2010 swallowed a three-story factory, although only one person was suspected to have died. Detroit in Michigan has seen a series of sinkholes open up, large enough to swallow vehicles. A huge sinkhole opened in Detroit on March 28, 2014, almost swallowing a Cadillac, and one on December 24, 2016 caused by a ruptured sewer line destroyed part of a house. The whole street had to be evacuated, media reported.

"Compared to many other sinkholes which had natural causes, the one in Xining is very serious and quite unprecedented," engineer Yuan Jiayu of the Shanghai Geotechnical Engineering Detection Centre told *ChinaReport* in late January. Yuan said that as far as he knew, there were few deaths caused by sinkholes attributed to non-natural causes before the Xining one. The most serious occurred on May 20 in 2013 in an industrial park in Shenzhen where a sinkhole engulfed an entire building complex, resulting in five deaths and one injury.

That incident prompted Yuan to research land subsidence in urban areas. As urbanisation has increased in the last decade, he found frequent occurrences of land subsidence due to geological conditions and insufficient road bearing capacity. He suggested that the Xining incident might have an underlying natural cause, since the area is predominantly loess, prone to collapse. Loess soil is strong in dry conditions, but unstable once immersed in water. Also in Xining, civil air defence projects were built in earlier decades and "these could be what caused the soil erosion," Yuan said.

Air defence projects have resulted in collapses before. Yao Xuehu, an expert in geophysics, said that the problem is more serious in northern China than the rest of the country, including collapses in Harbin, Heilongjiang Province, Zhengzhou in Henan Province, and in Lanzhou. It was confirmed later that near the Xining collapse is an underground air defence tunnel. An official from Xining government, who asked not to be named, told the reporter that the tunnel is 20 metres underground, was built in the 1960s to 70s and is around 9 metres from the sinkhole. According to the official, after the incident, there was also a collapse in the tunnel. Local authorities dispatched rescuers to the tunnel to search for the missing woman, but she was not found. In mid-January, when *ChinaReport* visited the site of the

Two cars fell into a sinkhole that opened up at a subway construction site in Xiamen, Fujian Province, December 12, 2019. The occupants were rescued

collapse, there were still people with equipment conducting tests. The official said there had been regular inspections in August and October 2019 which did not detect any water leaks. He added that there was no concrete evidence yet linking the sinkhole to the defence tunnel. The real reason for the collapse is still to be established.

ChinaReport learned from witnesses and survivors that a water pipe was broken in the large underground pit which resulted in the flooding at the bottom of the hole. Zhou Min, an official from Xining Water Supply Group told media that the pipe was broken by the falling bus. However, the reporter learned from the local authority that it is not yet confirmed whether it was already broken, or the bus caused it.

The reporter learned from local business owners and residents that 15 to 20 minutes prior to the disaster, the water supply to four shops opposite the bus station was cut. Three of the shop owners said that since the morning of January 13, the flow of tap water had been less than normal. Some also mentioned there had been excavations to carry out repairs to pipes in the area during the previous summer.

Regular Inspections

Nine days after the Xining incident, Chinese Premier Li Keqiang inspected the site of the sinkhole. Li cautioned that local authorities should start strict inspection, check the security of urban public infrastructure and ensure the quality of new construction projects, particularly underground sections.

"Soil erosion caused by pipeline defects is a hidden problem. Problems are random and cause long-term impacts. Day-to-day inspections can't really spot these problems," said Yuan Jiayu. Naturally caused land subsidence is a frequent issue, he said.

Liu Huizhong, deputy secretary general of the Underground Pipeline Committee of China Association of City Planning, told the reporter that domestic administrative measures taken to address such issues come mostly in the wake of emergencies, and they cannot solve the prevailing problem in the long term. He suggested following the successful experience of Japan. "We should conduct regular inspections, particularly in key regions, roads, areas along subway lines, or above water supply pipelines," Liu said. A common method to test for underground holes is to use vehicle radar systems. According to the *Beijing News*, Japan has been using radar testing for road maintenance for over 20 years. Designated companies conduct regular checks on key roads in Tokyo, and if there are any hazards spotted, road authorities deal with them swiftly. Those in charge of underground pipes will check them and give maintenance recommendations to road authorities.

Yuan also recommended the experience and practices of Shenzhen should be considered by other cities. Since 2013, there have been 200 incidences of land subsidence in Shenzhen. Shenzhen municipality set up a special department named the Shenzhen land subsidence prevention leading group. The group was led by the then-executive vice mayor who called for united efforts across government to work together in addressing the problem. In 2014, the city government decided to invest 800 million yuan (US$114.6 million) annually for three years on prevention measures. First, inspections of drainage pipelines were conducted, with more than 20,000 potential problems found. Through radar testing, over 2,000 holes were spotted underground, and follow-up measures were taken. Lei Chengbin, former vice director of the Shenzhen leading group, told *ChinaReport* that it has become normal practice in Shenzhen to hold regular inspections of pipelines. Annually, these inspections cover around one-fifth of all pipelines within the city, with a full check taking five years. National standards call for only 5 percent of pipelines to be checked each year.

"Although land subsidence still happens quite a lot in Shenzhen, we don't see too many deaths or injuries because of the effective preventative measures," said Lei, who admitted that it is impossible to prevent small incidents. "It's not practical to change all the old pipelines and human activities such as constructing subway lines can't be stopped," he said.

But not all cities have the financial resources to copy Shenzhen. A geologist, who asked for anonymity, told the reporter that in general, local governments did not pay sufficient attention to the issue. "Most land subsidence accidents have happened since 2009 in China, and they will continue to happen."

"It is of paramount importance to learn lessons from these deadly incidents and draw the attention of local governments. It's like the city itself getting ill and needing medical treatment."★

Ma Chao and Chen Ying are pseudonyms

Film

SET FOR GLORY

Sports biopic *Leap* honours the winning legacy of the Chinese women's volleyball team while highlighting a spirit that inspired the nation for decades

By Kui Yanzhang and Xu Ming

The film *Leap* seeks to capture the unique status women's volleyball has in the Chinese mainland

Leap, which recounts the four-decade legacy of the Chinese women's volleyball team with a focus on player turned coach Lang Ping (Gong Li), was one of the most highly anticipated films slated for release over the Chinese New Year holiday.

The biopic was released on January 20 to widespread acclaim before being pulled from cinemas, along with all holiday releases, due to the Covid-19 outbreak.

Critics called it "touching" and "inspirational." After the release of the first trailer on December 24, the film was among the most-searched hashtags on Weibo.

While previous sports films have seen little success at the Chinese mainland box office, *Leap* transcends the genre with a unique story of heroism and dedication.

Since the 1980s, the unswerving spirit of the team has provided inspiration for generations of Chinese people.

The project immediately generated buzz when it was announced in early 2018, and every step of production – from casting to location scouting – garnered widespread attention.

Anticipating the film's significance to Chinese audiences, Hong Kong director Peter Chan (*American Dreams in China*), strove for historical accuracy in presenting the team's legacy.

In an interview with *ChinaReport*, Chan said that shooting the film gave him a chance to better understand the appeal of the team's spirit. "I wanted to figure out why volleyball could get such a big reaction from ordinary Chinese people," Chan said.

Recalling an Era

As Chan watched 18-year-old Lang Ping and her teammates play South Korea during the 1978 Asian Games in Bangkok, he never expected that 41 years later, he would direct a film about them.

Chan was a 16-year-old high school student at the time with an interest in film. He got his first film industry job at 21 as a crew translator for Hong Kong director John Woo. Eight years later in 1991, he directed his first film.

During the 2000s, Chan gradually built a reputation as leader of a growing wave of Hong Kong directors filming in the mainland.

Chan had been working on the script for a biopic of tennis champion Li Na when the Chinese women's volleyball team won gold at the 2016 Summer Olympics in Rio de Janeiro.

The victory sparked celebrations across China. Impressed, Chan approached screenplay writer Zhang Ji. "What if we make a film about the Chinese women's volleyball team? What kind of story could it be?" he said he asked Zhang.

Zhang, who provided Chan with a window to better understand the mainland, explained the team's history could be used as a vehicle to illustrate China's social changes over time.

Chan and Zhang reached out to the team for the rights to the story before conducting

research and interviews. The stories they collected were so rich in detail that Chan said he had enough material for five films.

Chan picks up the story in the 1980s, focusing on the friendship and tensions between Lang, then a substitute player, and assistant trainer Chen Zhonghe. Chen was later named head coach (2001-09).

During the Beijing Olympic Games in 2008, the two former teammates became rivals as Lang, who was then head coach for the US, took her team to silver. The Chen-led China team took bronze.

Lang eventually returned to the helm of China's national team and, with the assistance of Chen, won gold at the Rio Summer Olympic Games in 2016.

The film follows the highs and lows of the Chinese women's volleyball team on and off the court, which mirror the larger social changes taking place in China.

Chan said the Chinese mainland of the 1980s – and the early days of its reform and opening-up – intrigued him. "At that time, suddenly everything was possible and waiting to be done. I had heard a lot about it from friends my age for more than 10 years. I feel good about how I've reproduced these feelings," Chan told *ChinaReport*.

Coach Lang Ping

An Iconic Team

In the 1960s, China was already a table tennis powerhouse. But volleyball was still a weak point. After undergoing years of hellish training in Japan, the women's national team – officially formed in 1976 under head coach Yuan Weimin – gradually found its stride. In 1979, the team beat Japan to win the Asian Women's Volleyball Championship.

The team became the first Chinese team that played of the "three big balls" – football, volleyball or basketball – to win an Asian championship.

In 1981, the team won its first world title at the FIVB Women's World Cup held in Japan.

The victory kicked off the team's decade of dominance that included the 1982 FIVB Volleyball Women's World Championship, gold at the 1984 Olympic Games in Los Angeles, another FIVB Women's World Cup title in 1985 and the FIVB Volleyball Women's World Championship again in 1986.

But China's success in volleyball went beyond sports. When the team won their first championship in November 1981, China had recently emerged from a decade of turmoil. The championship was seen as a good omen. Crowds gathered in Tiananmen Square chanting "Long live China! Long live the women's volleyball team!" Their victory dominated headlines of the day. "Why should we worry about the realisation of modernisation if the spirit of the women's volleyball team can be used in this direction?" read a *People's Daily* commentary.

The win was a boost to the nation's low morale following the Cultural Revolution (1966-76). In letters to the team's players, factory workers wrote they hoped to learn from the spirit of the volleyball team and do their utmost to reach their production goals.

After their winning streak, media reports focused more on the challenges the team had overcome along the way. For example, their training grounds were crude and not professionally equipped. Lacking in funding, the team took cheap commercial flights and stayed in dorms instead of hotels. But the team was tough. On flights to tournaments overseas, head coach Yuan would make players do squats in the back of the plane for as long as possible.

For the next several years, Lang and her teammates were among the most well-known faces in the country.

"Learn from the women's volleyball team and revitalise China" became an inspirational slogan in all industries. Newspapers ran stories of diligent workers who emulated their spirit by volunteering to work overtime and exceeding production targets.

"In the early years of reform and opening-up, Chinese people realised the gap between China and the world and were a bit frustrated and perplexed about it. The widely promoted fighting spirit of the team actually announced to the Chinese people and the world that China has the confidence and capability to rise," Wang Chunguang, a research fellow at the Chinese Academy of Social Sciences, told the Guangzhou-based *Information Times* in 2008.

The spirit also embodies the determination to go all-out even when you know that victory might never come, Lang said after her team won at the Rio Games.

That time came in the 1990s. The team showed signs of picking up between 2000 and 2008, but dipped back again in 2009 and 2013. Despite their efforts over the next two decades, the team only had two world championships to show for it. But their situation improved in 2013 when Lang was named head coach for the second time. Between 2015 and 2019, the team won three world championships.

These years added a more human and equally inspiring side to the team's legacy. Instead of remaining an untouchable myth, the team had fallen from the top only to fight its way back. They now had a comeback story.

Staying True

The team is still worshipped by young Chinese today. In September 2019, the team returned home after winning the Women's Volleyball World Cup title in Japan to an overwhelming crowd of bouquet-bearing fans at the airport. The reception recalled the same passionate support young people showed the team 30 years ago.

"The spirit of the Chinese women's volleyball team is born out of the spirit of reform and opening-up. Since winning its first world championship, players have become heroes who have encouraged generations of Chinese people to fight for the prosperity of the country," read a *People's Daily* article in September 2019. "Now as China is at a key stage of revitalizing the nation, many challenges and risks remain… We have no choice but to fight. Carrying forward the spirit and maintaining high morale, we will be able to make new achievements."

But capturing that spirit on film is no easy task. Few Chinese sports films in the past successfully captured the true levels of athleticism involved, mainly due to poor casting and shooting techniques.

Chan went to great lengths to recreate action scenes and faithfully portray the people involved. When casting for the film, the crew auditioned more than 2,000 athletes from volleyball teams and sports academies nationwide. He eventually narrowed the applicants to around 10 to play the 1980s team members. Chan was still casting until one week before production. He posted the actors' headshots on a wall next to photos of the figures they were to portray and kept rearranging them until he found the right matches.

To recreate matches from the Rio Olympic Games, Chan recruited players from the team's 2016 roster to play themselves, including Zhu Ting, Hui Ruoqi and Xu Yunli. For showdowns with China's main competitor, Chan enlisted volleyball players from Brazil who also competed in the 2016 Olympic Games. Chan cast Lang's daughter, Bai Lang, to play her mother in the 1980s.

He also recreated the team's 1980s training base in Zhangzhou, Southeast China's Fujian Province on a Beijing set. He paid extreme attention to detail: As the old gym was converted to a museum, Chan had the worn bamboo flooring on which Lang and her teammates had trained shipped to Beijing for the set.

In October 2019, while attending the Sixth Silk Road International Film Festival, Chan revealed he felt under extreme pressure to portray the team's journey as accurately as possible.

"From its five consecutive world championships in the 1980s to the team's latest World Cup title, the film tries to reproduce every historical detail in the hopes that audiences see the true spirit of the Chinese women's volleyball team and the changes of time," Chen said at the festival. ★

Gong Li plays legendary coach Lang Ping

Arctic Exploration

GOING WITH THE FLOE

As the largest and most ambitious international Arctic polar research expedition finishes its first leg, *ChinaReport* interviews scientist Lei Ruibo to learn about its progress

By Wang Yan

PHOTO BY LEI RUIBO

Cargo arrives for the MOSAiC expedition from escort icebreaker *Akademik Fedorov*

On September 20, 2019, the Multidisciplinary Drifting Observatory for the Study of Arctic Climate (MOSAiC) expedition, led by the German icebreaker research vessel *Polarstern* and escorted by the Russian icebreaker *Akademik Fedorov*, departed from the Norwegian port of Tromsø, sailing for the Central Arctic Ocean. The year-long expedition, which will see the *Polarstern* anchored to a drifting ice floe, will move with the current across the Arctic Ocean. The largest polar expedition in history, MOSAiC is an international programme involving a rotating team of 600 experts from 17 countries.

At the expedition's launch, Markus Rex from the Alfred Wegener Institute, Germany and chief scientist of MOSAiC, said that the Arctic is the epicentre of global climate warming and it has already undergone dramatic changes. "For the first time we will be able to measure the climate processes in the Central Arctic in winter. And so for the first time, we will be able to understand this region and correctly represent it in climate models," Rex said.

Scientific research indicates that the Arctic has warmed at twice the speed of the rest of the globe, resulting in the rapid loss of sea ice. The data gathered will be crucial to study changes in the Arctic climate and its role at the global scale, and the impacts on the weather and climate in high- or mid-latitudes.

Eighteen Chinese scientists are scheduled to participate in different legs of MOSAiC. Among them are 12 researchers from organisations including the Polar Research Institute of China, the First and Second Institute of Oceanography of Ministry of Natural Resources, the Ocean University of China, Zhejiang University, Beijing Normal University and the Taiyuan University of Technology, who had already completed their part of the expedition by early January 2020. During this time, the *Polarstern* along with the ice floe on which the research was being carried out, had drifted 200 kilometres towards the North Pole.

Lei Ruibo, a sea ice physicist from the Polar Research Institute of China told *ChinaReport* they had witnessed the aurora borealis, better known as the Northern Lights, experienced the polar night, seen a giant blazing moon, encountered potential threats from polar bears and dealt with harsh weather, equipment failure, lack of fresh food and homesickness. Some scientists, including Lei, suffered severe frostbite.

In late January, *ChinaReport* interviewed Lei by telephone after his return about the progress of the expedition. After being part of expeditions in the Arctic and Antarctic during the past decade, this time, he was appointed MOSAiC coordinator for the Chinese team.

ChinaReport: What is the goal of the project and what is the significance of the main research compared with previous studies in the Arctic?

Lei Ruibo: The goal of MOSAiC is to gain urgently needed in-situ data on the interactions between the atmosphere, ocean and sea ice, as well as on the ecosystem, so as to better understand changes in the Arctic climate and its role at the global scale.

Although there have been a few similar year-long ice drift expeditions to study the Arctic, the most recent in the late 1990s, sea ice conditions have changed significantly during the past two decades. Data collected earlier can no longer fill the gap of knowledge for our present understanding of the sea ice, and we are unable to describe the physical changes in the sea ice that have occurred along with the process of climate change in recent decades. The main objective is to gather data on five disciplines, including the atmosphere, sea ice, ocean, ecosystems and biogeochemistry, to enhance understanding of the interactions of various components of the climate system. With the most advanced monitoring technology and equipment, as well as professional experts on Arctic science across the world having joined the expedition, it will provide the most comprehensive opportunity to better learn about the Arctic.

CR: What's the focus of your work this time and can you share with us the interaction of the sub-area you work on with other disciplines?

LRB: My focus is on sea ice physics, or the processes of ice cover evolution, in the polar region, and development of sea ice observatory technology and equipment. Based on studies on the changes in sea ice and atmosphere-sea and ice-ocean interactions in the Arctic, we want to reveal the impact and feedback of sea ice on climate change. A warming climate can affect the formation and seasonality of sea ice, while changes in sea ice can further affect marine ecology.

Studying sea ice physics helps us understand the circulation of greenhouse gases including CO2 and methane between the atmosphere, snow, sea ice and oceans.

To be more specific, through deployment of buoys on sea ice, one of the objectives is to study the annual cycles of sea ice thermodynamics, kinematics [motion] and dynamic deformation, as well as their responses to atmospheric forcing, for example, heavy storms.

The sub-areas that researchers are investigating are closely linked despite the differences in knowledge and theoretical backgrounds of the scientists in different fields. For example, for the same sample of an ice core, physicists focus on the physical structure of the ice core to depict the impact of climate change on the formation of the ice, while biologists focus on the microorganisms contained in the ice and study the impact on such organisms under climate warming. Scientists focusing on geochemical circulation study the existence of greenhouse gases contained within the ice to explain the gas exchanges between atmosphere and ocean through the snow and ice. All these achievements, once combined, can thoroughly explain the interactions that influence the climate system and life in the Central Arctic.

CR: What are the challenges involved in this type of fieldwork?

LRB: The whole process was not easy right from the start. It really took us a long time to find ice thick enough for our main ice camp since the region is dominated by thin first-year sea ice of less than one metre thick. The two primary dangers are encountering polar bears and storms. Due to the polar night, without sunlight, it is challenging for even professional polar bear guards to spot them using lights from the ship when there is only limited vision.

Since late September, we saw polar bears a few times, including sightings of lone bears and of mother bears with cubs, but fortunately, they were not very close and nothing dramatic happened. When researchers go on to the ice floe to work, a guard accompanies them. If a bear is spotted, the team must immediately return to the ship. If escape is impossible and the bear is within 30 metres, a flare gun will be used to scare it away.

Another challenge for our work, more than bear visits, is the powerful winter storms. We had projected that sea ice would be more stable in winter, but in reality it was not. Normally, scientists can work if the wind speed is lower than 17 metres per second. Apart from delaying work, when a storm sweeps over the ice, it can tear new fractures or cracks across the ice floe, destroy ice-based instruments, and the resulting rescue and repairs mean extra days of work. For example, a huge storm in mid-November caused a 30-metre-high meteorological mast in the Central Observatory of our main ice station to fall down.

CR: How do the scientists cope with such hostile working conditions?

LRB: Considering the heavy investment from participating countries, it is of paramount importance for scientists to maintain the safety of our monitoring instruments. Of course, we also need to cope with other normal challenges like no sunlight, extreme low temperatures and a long time away from our families. Following the German

MOSAiC
International Arctic Drift Expedition

Photo by Esther Horvath

The MOSAiC expedition team pose for a group photo, December 7, 2019

organiser's instructions, we underwent rigourous preparatory training programmes before the expedition including firefighting, drills in case we need to abandon ship, measures to escape if you fall into the frigid water and how to deal with polar bear attacks.

For a polar bear attack, we were told to try not to run, or at least not to run in a straight line. That's because if polar bears, due to their heavy weight, run and try to turn at the same time, they can easily fall over, thus allowing extra time for people to escape.

This time, apart from expedition participants undergoing survival or other specialised training, thanks to the full preparations of the German organiser, eight professional polar bear guards were employed to ensure our safety. Most of them are professional explorers or hunters from Arctic countries who can deal with polar bear attacks. But for most of the scientific activities at the individual measurement sites on the ice floe, we still need to rely on self-protection awareness and individual safety measures.

CR: What are the new findings so far, and what's the plan to share the data?

LRB: Despite the extremely challenging conditions, we have tried to maintain a steady flow of scientific data in all disciplines. However, so far it is not quantifiable since there are still five more legs to go. There is one common understanding during the winter expedition so far among scientists. Contrary to our previous understanding that there are relatively weak dynamics of sea ice in the Arctic during winter, [meaning it was not expected to move much], the ice is unusually thin with most of it less than one metre thick. This results in it being highly dynamic and unstable, especially during storms. This also posed extreme difficulties in choosing an ice floe thick enough to build the ice stations.

This was the first time I went on a winter expedition in the Arctic. Previous research found that the frequency of extreme high temperatures is increasing in the Arctic in winter, which even resulted in random sleet when the air temperature increased to near zero C. In the first leg of the expedition I took part in, the temperature was overall normal, with a high of -4ºC and a low of -34ºC.

We have a data sharing platform and the data collected from this expedition will ultimately be a common legacy for all human society. For the first step, researchers participating and contributing to this expedition can get real-time data through the shared platform. All the data will be available to the public by 2023 after it's checked. Scientific analysis and climate modelling, once completed, will provide evidence to renew public perception on the overall condition of planetary climate change.

CR: Why is this project so unique? Can you give us some details about the timeframe and people involved?

LRB: The MOSAiC expedition is not the first to attempt an ice drift. Apart from a Norwegian explorer's pioneering three-year drift fieldwork in the late 1800s [Fridtjof Nansen froze his ship *Fram* into the Arctic ice to attempt to reach the North Pole], Soviet and Russian scientists also established research bases on drifting ice floes, starting

Storms prevent the team from deploying their instruments and halt research on the polar night of December 3, 2019

Photo by Lei Ruibo

in the late 1930s. But operations to establish drift research stations were stopped [by Russia] in 2013 due to the heightened danger of the unstable thin ice in recent winters.

There are six legs for the whole expedition from late September 2019 until late October 2020. As planned, 18 Chinese researchers from all five sub-areas including ocean, sea ice, ecosystems, atmosphere and biogeochemistry will join five of the six legs. By December 13, after exchanging scientists and crew members, the first leg of the project in which I participated was successfully fulfilled. Professor Liu Hailong, a physical oceanographer from Shanghai Jiao Tong University joined the second leg to continue the work, along with more than 60 scientists from across the world.

CR: What is China's role in the project and current achievements in Arctic research?

LRB: Apart from Germany, the US is a big contributor to the project, due to their existing expertise in Arctic studies. China, Sweden and Russia also play important contributing roles. The expedition is being carried out mainly by German icebreaker the *Polarstern*, and four additional icebreakers from Sweden, China and Russia are scheduled to help transfer people and supplies to and from the MOSAiC ice camp throughout the year. China's new polar research vessel *Xuelong 2* will carry scientists and supplies between the fifth and sixth legs in August 2020.

The whole MOSAiC drift programme is composed of one Central Observatory, three large sites, eight medium sites and some 50 position note sites, a total number of more than 60 observatories in a 40-kilometre radius around the *Polarstern*. During the first leg, China contributed instruments for the construction of the distributed observatory network by deploying one uncrewed ice station, five oceanic profilers, 16 sea ice mass balance buoys and 20 ice drifters. Most of the buoys were designed and built in China.

Through international cooperation, we will collect data from all the observatories, which will definitely promote dynamic and thermodynamic studies on Arctic sea ice and improve the weather and sea ice forecasting in the Arctic region.

China's first national Arctic expedition was implemented in 1999 and there've been 10 up to now, but none in winter. Prior to 1999, some Chinese scientists had taken part in Arctic expeditions organised by other countries. China did not have an expedition icebreaker vessel until 1993 when it bought the *Xuelong* from Ukraine and upgraded it into a polar research vessel. Before 2008, China had only conducted Arctic expeditions in 1999 and 2003. Since 2008, also the fourth International Polar Year, we've done biannual expeditions in the Arctic area, and from 2018, the expeditions will be an annual scientific undertaking. In July 2019, China's first self-built polar icebreaker the *Xuelong 2* was launched to boost China's polar research and expedition capabilities. With additional funding in the future, we expect more expeditions in the autumn and winter seasons.

CR: Any personal achievements so far from the expedition that you can share and will there be such joint research expeditions in the future?

LRB: My research which focuses on monitoring the changes in the sea ice can be obtained mainly through data collected from the deployed buoys during the first leg of the expedition that I joined. More buoys have been deployed than my previous expeditions to the Arctic because of the strong logistics support capability of MOSAiC and so far the survival rate of these buoys is relatively high. More importantly, the buoy distributed network can be maintained throughout the whole year, and more buoys can be deployed in the coming legs through cooperation with the scientists from other countries, ensuring high-quality data can be collected continuously.

Although international cooperation on Arctic research has been going on a long time, and data sharing is commonly practised among international scientists in this field, there's never been an expedition of such a scale with this level of logistical support before.

Financial investment for this voyage from participating countries is unprecedented. The logistics budget for the expedition is roughly 140 million euros. So I can't really say whether there will be similar large expeditions often, but there will certainly continue to be joint studies on climate change and the Arctic. MOSAiC provides an outstanding example for people to study the Arctic climate together.★

Covid-19

Economic Contagion

The ongoing health crisis caused by the raging coronavirus epidemic is set to have a lasting impact on China's economy and beyond

By Yu Xiaodong and He Bin

Photo by Yong He

"Go China!" reads a display screen in the Bund, normally Shanghai's most populous location, February 7, 2020.

At time of publication, the disease caused by the novel coronavirus, now officially named Covid-19 by the World Health Organisation (WHO), had infected more than 77,041 people and killed more than 2,445, the vast majority in the Chinese mainland. The disease has spread to more than 30 countries. Given the scale of the epidemic and the possibility that it could drag on for months, it is set to have a significant and lasting impact on China's economy, if not the global economy.

Lockdown

Since China on January 23 locked down Wuhan, capital of Hubei Province and epicentre of the Covid-19 outbreak, cities across China have taken similar measures to restrict population flow and curb the spread of the highly contagious virus.

While the quarantine measures have kept people at home, they have dealt a heavy blow to industries from tourism and hospitality to aviation and entertainment, which usually enjoy a boom during the Chinese New Year holiday period.

The tourism industry alone is estimated to have suffered a 550 billion yuan (US$80b) loss in revenue over the holiday as some 400 million people cancelled their travel plans.

According to a survey by the Tsinghua University School of Economics and Management 58 percent of entrepreneurs from 212 enterprises covering 12 industries said that the coronavirus outbreak has caused "serious" or "very serious" consequences for their enterprises, while 75 percent said the crisis has had a serious impact on China's economy.

According to Zheng Shilin, an associate researcher at the National School of Development of Peking University, the Covid-19 crisis has most affected the service sector.

Comparing the Covid-19 outbreak with the SARS crisis in 2003, Zheng said that the service sector suffered a revenue loss of 21.9 percent back then. As the ratio of the service sector in China's economy has increased from 32.3 percent in 2003 to 53.9 percent in 2019, the coronavirus outbreak, which may last longer than SARS, will have a greater impact.

Manufacturing Sector

While the service sector appears to be the most impacted in the short term, what worries authorities most is the crisis' long-term impact on China's manufacturing sector. "It poses a major threat to the health of China's macro-economy, as many manufacturing companies are hanging by a thread," Liu Shangxi, president of the Chinese Academy of Fiscal Science (CAFS) told *ChinaReport*.

Liu said that the health crisis poses challenges to manufacturing. Many workers returned to their hometowns over the Chinese

Photo by Cheng Jingwei

Popular restaurants lie dormant during the coronavirus outbreak at Clifford Estates in the Panyu District of Guangzhou, capital of South China's Guangdong Province, February 5, 2020

New Year holiday, which was extended in many provinces. Now they are coming back, most are subject to quarantines imposed by local authorities, which means most factories have had to suspend production for at least a month, if not longer.

Also, because shipping and logistic industries are subject to restrictions, companies are finding it difficult to obtain raw materials. And given the fixed costs and potential financial losses incurred by delayed fulfillment of existing contracts, the biggest problem for many companies is cash flow, Liu told *ChinaReport*.

On February 1, the People's Bank of China (PBoC), China's central bank, pledged to "maintain reasonable and sufficient liquidity" in the financial market, injecting 1.2 trillion yuan (US$173b) into money markets through reverse bond repurchase agreements. On February 17, the PBoC announced a cut in interest rates on its medium-term lending to lower borrowing costs and ease financial strains on companies hit by the virus epidemic.

The government also released policies including tax relief for businesses hit by the coronavirus outbreak. While these measures have helped China's stock market to rally, they may not be enough, given the scale and severity of the problem, especially for hard-hit small- and medium-sized enterprises. According to Liu, the government should make more detailed and tailored plans to offer direct subsidies to key industries and enterprises.

Decoupling?

As many countries have imposed restrictions on travel to and from China since the Covid-19 outbreak, there has also been talk of its speeding up so-called decoupling between the US and China. The issue dominated headlines in 2019 as the two countries engaged in a protracted trade war. As the coronavirus outbreak disrupted the global supply chain and international firms like Apple and Honda shut down their China factories, the issue has resurfaced. Some US officials, such as Secretary of Commerce Wilbur Ross, openly talked about how the crisis would help bring jobs back to the US.

According to Zhu Caihua, deputy director of the Chinese Academy of International Trade and Economic Cooperation, a think tank under the Ministry of Commerce, the issue will depend on how long the crisis persists. Zhu said that if the coronavirus outbreak can be brought under control in the first quarter, its impact on China's economy would be limited.

"Chinese suppliers may have to postpone delivery of their orders, but it won't have a serious long-term impact as suppliers in other countries won't be able to replace China's production capacity that quickly," Zhu said. "It will be similar to SARS in 2003, when it only had a temporary impact."

But he warned if the crisis lasts more than six months, it could lead to some "irreversible" and "unpredictable" consequences for China and the global economy, as well as China's status in the global supply chain. Not only would some manufacturing businesses leave China permanently, some countries may also impose new import restrictions on Chinese goods, Zhu said.

Zhu said the Chinese government must carefully balance its efforts to contain the coronavirus outbreak with resuming industrial production. Following the decline in new infections outside Hubei Province in mid-February, many cities are now contemplating loosening restrictions on production. Zhu said that authorities should still prioritise the fight against the coronavirus.

Yan Se, deputy director of the Institute of Economic Policy Research of Peking University, agreed. Yan told *ChinaReport* that China should take an incremental approach to prevent further complications in the coronavirus outbreak. He estimated that only one-third of manufacturing enterprises could resume production in February.

Global Impact

Given the size of the Chinese economy and its ties with the world, other countries, especially those in Asia, have started to feel the chill.

In Thailand, where Chinese tourists make up the largest single group of visitors – more than 10 million visits were made in 2019 alone – authorities estimate the coronavirus epidemic will result in losses of 300 billion baht (US$9.6b) in the first half of the year, provided the outbreak is contained by the end of March.

Some countries have started adjusting their economic projections for 2020. Singapore, for example, warned that it could experience a recession in 2020 and downgraded its economic growth forecast to between -0.5 and 1.5 percent from its earlier forecast of 0.5 and 2.5 percent.

The city-state, another favourite tourist destination – 3.4 million Chinese tourists visited the island in 2018 – has had 86 confirmed coronavirus cases. In late January, Singapore imposed a travel ban on anyone who had travelled to the Chinese mainland in the last 14 days.

With a similar travel ban in place, Australia is another country that economists believe could plunge into recession – its first in three decades.

China had set its target growth rate for 2020 at 6 percent, with many hoping that a trade war truce with the US, which went into effect February 14, would provide a period of relief and recovery.

Goldman Sachs predicts that China's growth rate will drop to 5.5 percent for 2020, from 6.1 percent in 2019, while others estimate the growth rate could fall below 5 percent.

But according to Chen Daofu, deputy director of the Research Institute of Finance, Development Research Centre of the State Council, specific growth rates are among the least concerns of Chinese decision-makers. "The key focus for the Chinese government now is how to ensure the smooth functioning of the entire economy." ★

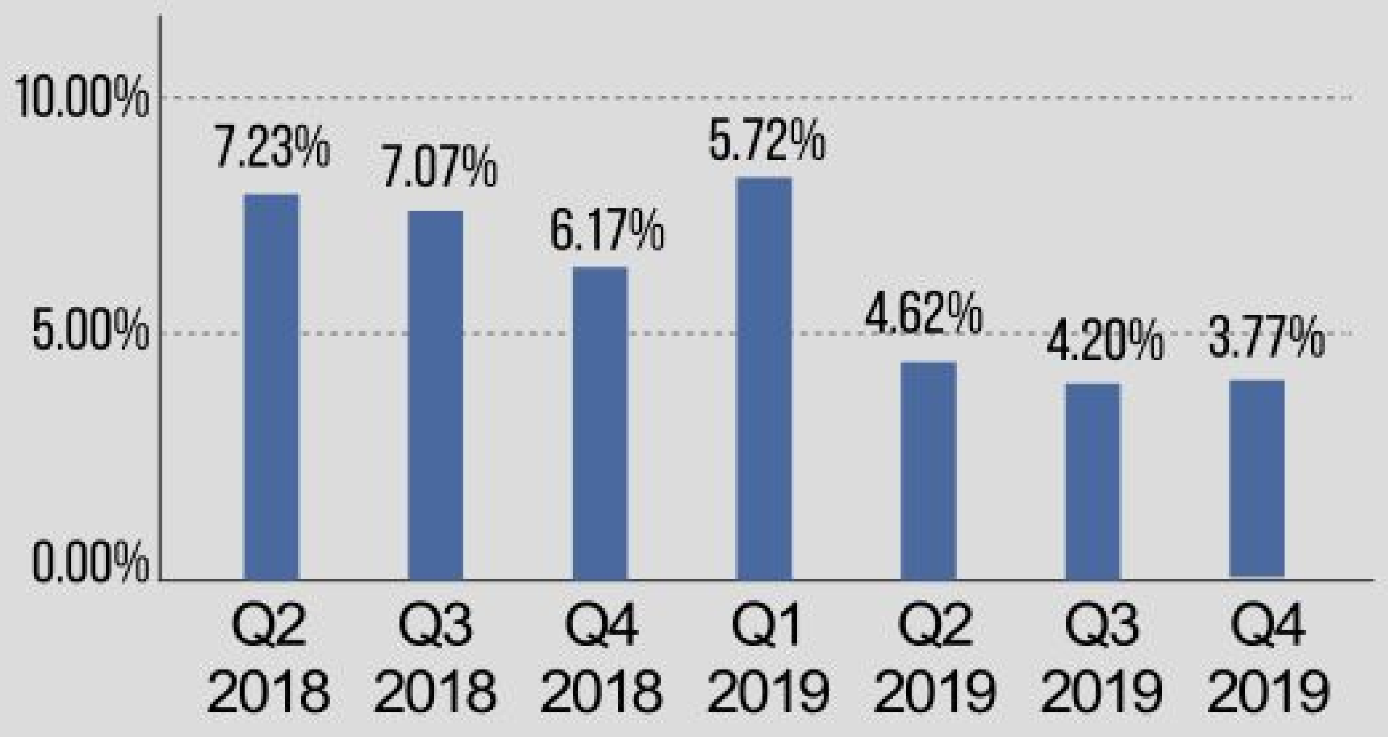
CHINA BY NUMBERS

3.77%

Year-on-year growth in land prices in 105 major Chinese cities in Q4 of 2019, a drop of 0.43 percentage points from the previous quarter, a consecutive decrease for seven quarters

Source: Ministry of Natural Resources of China

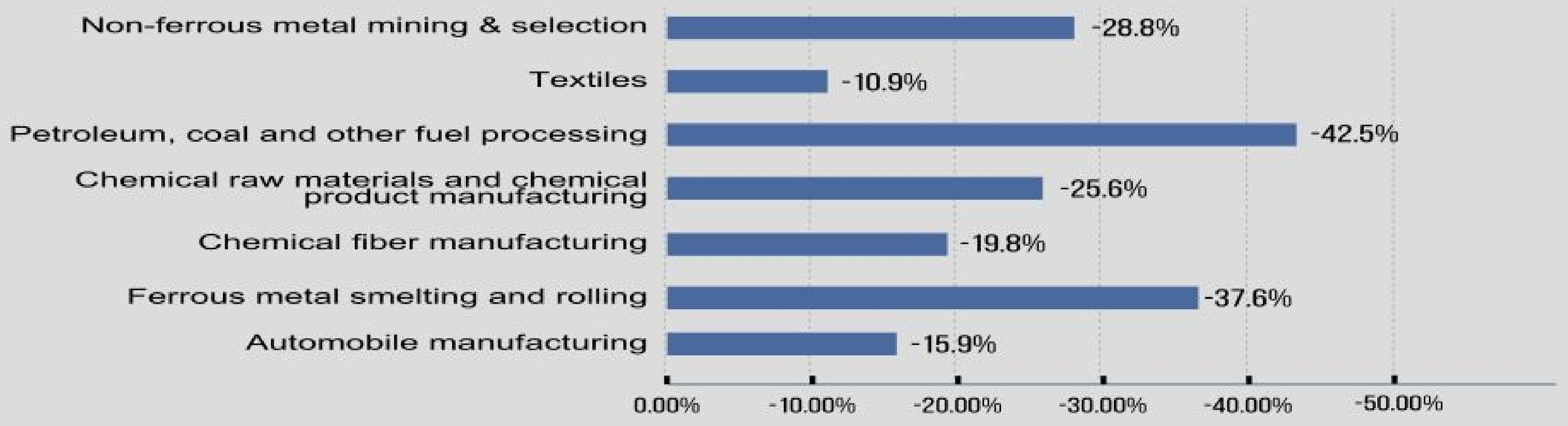
Year-on-year growth of land prices in 105 major cities between the second quarter of 2018 and the fourth quarter of 2019



2.2%

Increase in total profits of private industrial enterprises above designated size (with annual revenue of over US$2.9 million), while profits of all State and private enterprises above designated size dropped by 3.3 percent from 2018

Industries seeing a decrease of over 10 percent in profits compared with 2018

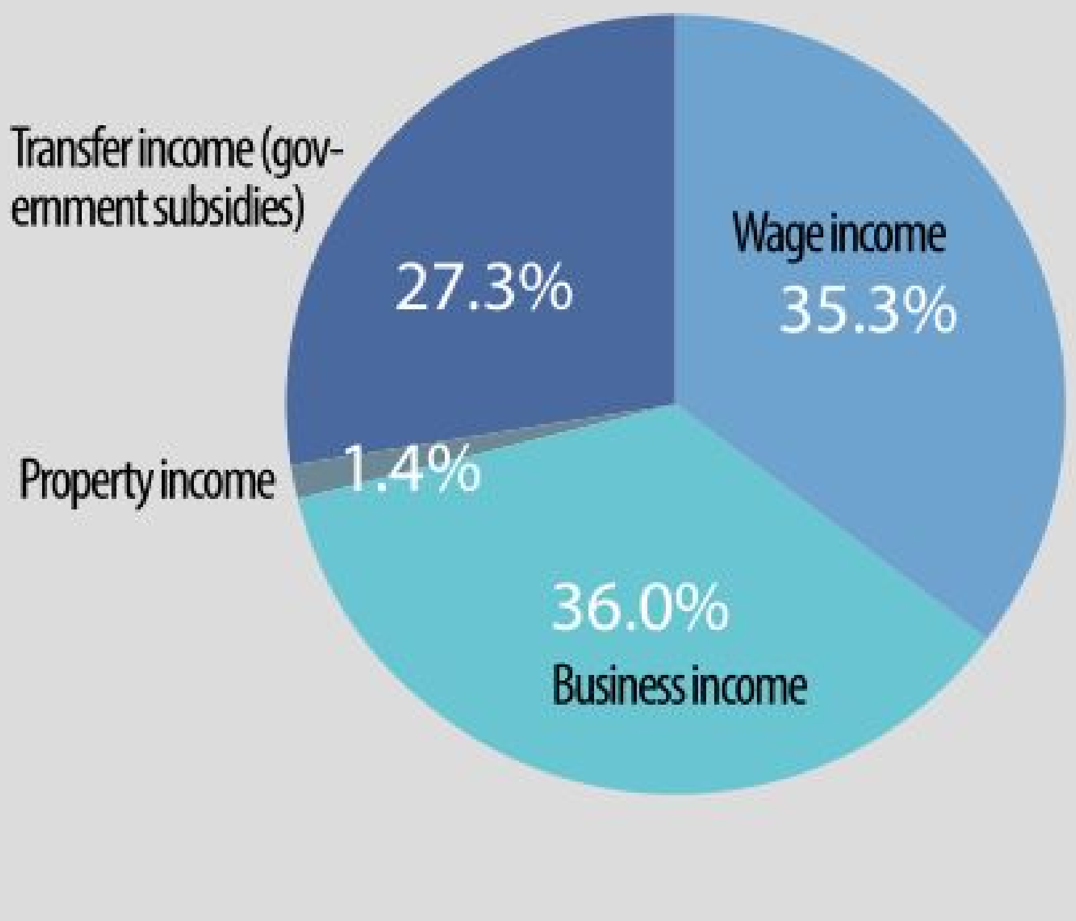


Source: National Bureau of Statistics of China

66.8%

Decrease in China's rural population living under the national poverty line of 2,300 yuan (US$328) annual income per capita at the end of 2019 over 2018, equating to 11.09 million people, while per capita disposable income of rural residents in poor areas rose by 11.5 percent

Contribution of different sources of income among rural residents in poverty-stricken areas in 2019

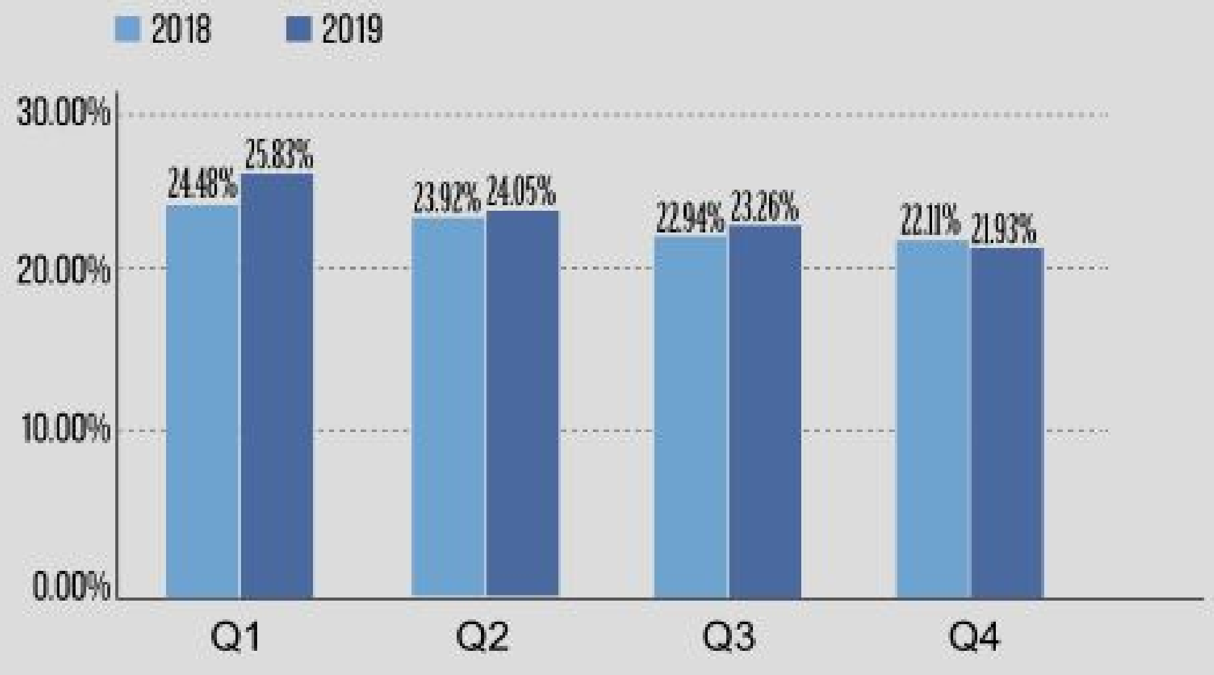


Source: National Bureau of Statistics of China

8.91%

Year-on-year increase in net profits of Chinese commercial banks in 2019, totalling US$284.6 billion

Share of non-interest income among commercial banks (2018-2019)



Source: China Banking and Insurance Regulatory Commission

US$3 trillion

China's outstanding local government debt by the end of December 2019, with the year's repayment of principal and interest amounting to US$187.9 billion and US$93.8 billion

Source: Ministry of Commerce of China

Music Industry

IN HER OWN VOICE

Pop megastar Li Yuchun talks with *ChinaReport* about the changing landscape of China's entertainment industry and fan economy, as well as her struggle to overcome years of labeling by critics and her ceaseless pursuit of self-expression

By Gu Xin

"Today, being an idol is a kind of service," says former *Super Girl* champion Li Yuchun

On the last day of 2019, Li Yuchun closed out the 2020 Jiangsu TV New Year Countdown Gala with her song "Wa." "Background, job, identity, gender, skin colour… / all these things have nothing to do with love / all these things have nothing to do with me," she sang.

Li sang "nothing to do with me" over and over again. Dancers circled her and removed the crown she was wearing. Li then took out a tissue and wiped off her lipstick.

She had specifically told the gala's director to get a close-up shot of her doing that.

In the summer of 2005, Chinese audiences crowned their first pop icon on live TV. Li, then 21, had won *Super Girl*, a singing competition where viewers voted for their favourite by text message.

Li stood out from the other contestants not only in talent. Her tomboy look and relatively masculine stage presence was considered a bold statement against China's gender norms that millions of fans embraced. Lee later appeared on the cover of *Time* magazine's Asian edition, which called her a "hero."

But Li, known also by her stage name Chris Lee, sees herself more as a musician. Since her *Super Girl* victory, she has released 10 studio albums, scored more than 60 chart-topping songs and starred in award-winning feature films.

Idol Conversation

Her unique, androgynous style almost single-handedly made gender-neutral aesthetics cool in China. But her challenge to China's prevailing beauty standards and gender conventions made her a target of cyber violence for over a decade.

For years, the press and social media have labelled Li an "idol," "megastar," "grassroots," "trendsetter," "androgynous," and a "feminist." Her New Year's TV performance openly challenged them all.

Born in Chengdu, Sichuan Province, Li comes from a working class family. Her father was a police officer and her mother a teacher.

In 2005, Li was a third-year vocal major at the Sichuan Conservatory of Music determined to pursue a singing career in Beijing after graduation. But that summer, her fate changed when she tried out for the second season of Hunan Satellite Television's *Super Girl*.

Super Girl was already a hit, but producers added a new element for the second season: the audience could vote via paid text messages – a first for Chinese TV. Fan clubs formed online and offline. Street teams campaigned for their favourite contestants. In major cities, club members canvassed shopping malls, subway stations, parks and other public spaces for votes.

Li saw the highest support among the contestants. Her loyal fans, who called themselves *yumi*, meaning "corn kernel" – a portmanteau of her given name "Yuchun" and the word for "fan" – were the most active.

The season finale brought in 400 million viewers. Li received 3.52 million votes – unprecedented in the history of Chinese pop culture.

"It was not called a 'talent show' at the time. We just saw it as a stage that allowed a group of people who loved singing to perform. We didn't know what was waiting for us ahead," Li told *ChinaReport*. "A couple of days after the finale, it gradually occurred to me that I couldn't go back to my old life anymore."

The success of *Super Girl* spawned the nobody-to-megastar model that later swept the country. The idol industry and fan economy grew in the Chinese mainland. Talent shows boomed, and companies such as EE-Media, Yue Hua Entertainment and Wajijiwa Entertainment began grooming future idols.

By the time *Super Girl* ended in 2011, smartphones brought idol worship and fan culture on social media to a new level. Fans would organise and buy multiple copies of a new release to boost idols' chart positions and crowdfund campaigns to promote their latest projects. Stars and their companies embraced it, giving fans a direct role in influencing their favourite artists' careers.

Tearing Off Labels

Li compared the trend to 1980-90s idols like singer/actor Leslie Cheung, one of the biggest stars of the Hong Kong entertainment industry before his suicide in 2003.

"The concept of what an idol is has changed. In Leslie Cheung's time, idols had strong personalities and could lead people with their extraordinary charisma and could create original work. But today, being an idol is a kind of service. Fans dictate their personas. They need to present a personality that caters to expectations. Otherwise their fans unfollow them," Li said.

In 2017, Li was invited as one of three coaches on music talent show *The Coming One* for streaming platform Tencent Video. But she became disillusioned after shooting the first episode. "I found that many contestants didn't really love music. They used music as a weapon to become famous," Li said.

"If I can't write 'goddamn' in my songs, perhaps I can say it through the mouths of characters I portray," Li said of her forays into acting

Unlike her own experience on *Super Girl*, Li found that most contestants on *The Coming One* were clear about what the show could do for their careers. "They knew what television exposure would bring about – a chance to become famous overnight. Many prepared a lot for it. They knew their strengths and weaknesses, and carefully calculated what to perform and what to hide from the camera," she said.

While talking with contestants on *The Coming One*, Li found that many had already signed with talent agencies, which provided professional singing, dancing and acting training. Some had already been on talent shows. "No matter what, they have their ways of winning," Li said.

Zhang Pei, managing director of *The Coming One*, told *ChinaReport* that the programme assigned every contestant a "personality writer" to help create for them a more appealing personal backstory.

"It's very possible that fans will forget about contestants before they show their real selves," Li said.

Despite her popularity, the industry was not quick to welcome Li.

Singers who shot to fame on reality TV programmes were usually considered unprofessional and vulgar in the industry.

Li faced prejudice from both the industry and the public. Some celebrities openly criticised her vocal talent. Some television stations would cut her performance or replace her with other performers. Until 2013, China Central Television (CCTV) did not invite her to perform on the annual *Spring Festival Gala*, one of the country's most-watched shows since the 1980s.

Li responded with hard work and patience. She has written and produced many of her nearly 80 career singles. But it was her fourth album, *Chris Lee* (2009), that marked a new phase of self-expression.

On track "Lai Fu" ("A Beautiful Song"), she gives lip-synching artists a tongue lashing. In "Bad Student," she voices her support for students labelled as bad based on their poor academic performance, and challenges China's exam-oriented education system. "Why Me" is about her unyielding defiance when she deals with criticism and attacks.

Over the past three years, she has taken on issues such as the relationship between individuals and society.

At the Venice Art Biennale 2017, Li was inspired by avantgarde artist Guan Xiao's work "David," a video on the role and influence of Michelangelo's "David" outside of Europe.

"Everybody visits the museum, eager to glimpse David. They discuss him as if trying to devour him, but no one knows who he really is. I found the video quite interesting. I sat there and spent a whole afternoon watching it over and over again," Li said.

The work reminded Li of her own situation: an object being defined and labelled. Soon after, she released her ninth album *Liu Xing* (*Pop*). For the first time, she wrote the lyrics for an entire album.

The title track explores how people deal with social media. In the video, Li repeatedly sings "I am the boss" while wearing a bunch of gold ropes and chains on her neck – a tongue-in-cheek reference to her idol status.

Her latest album *Wa* (2019) revolves around Li's criticism of defining societal labels such as gender, class, race, occupation, status and family background.

When asked about dealing with "being defined," Li responded: "Have I not been troubled by this all the time? Have I not been troubled by gender stereotypes? Have I not been attacked? Haven't all girls been affected by so-called defined roles today, be it at the workplace or among family? Have people not always judged others based on their background, gossiping about who is rich and who is poor? People talk about this stuff all the time but they seldom write it in pop songs. After all, many think pop songs are about nothing but love, love, love."

Li's unisex look and tomboy persona made her a high-profile target for cyber violence in the early days of Chinese social media. Netizens called her "Brother Chun" and posted images of Li's face photoshopped on the bodies of masculine-looking men.

Li was reluctant to go into detail about her experiences.

"The violence was too much to be talked about. All my suffering made me stronger and become what I am today. I protect myself from the chaos, just calmly observe and think, and I believe someday these scars will become an explosive force in my work," Li told *ChinaReport*.

Keep It Real

Li has also ventured into film, scoring leading roles in big-budget films such as Hong Kong director Teddy Chan's *Bodyguards* and *Assassins* (2009), Tsui Hark's *The Flying Swords of Dragon Gate* (2011) and Andrew Lau's *The Guillotines* (2012).

Last year she participated in Zhejiang Television reality show *I am the Actor II*, where she competed against Li Bingbing, Zhang Guoli, Guo Tao and Qin Hao.

"When you make pop music, you've got five to eight minutes to express yourself. When what I want to express takes longer, I'm also very interested in attempting different forms of expression," Li said about joining the show.

"If I can't write 'goddamn' in my songs, perhaps I can say it through the mouths of characters I portray."

Li often refers to herself in the third person, which she says gives her a detached perspective.

"The public knows her name and knows the existence of this being, but they don't know her feelings. When she performs the emotions of different characters, she is actually showing her own feelings as well," Li said.

She sets a clear demarcation between her two identities: Chris Lee, who attends top international film festivals and fashion shows, and Li Yuchun, who likes to cook a bowl of noodles for herself after a hard day's work.

In contrast with Lee, Li lives a quiet life. She seldom attends parties and usually goes straight home after work. She loves trying out new recipes at home with food delivered by her driver. When she has time, she visits art exhibitions or watches films – particularly the work of Japanese director Hirokazu Koreeda and Iranian filmmaker Asghar Farhadi.

Li said her grassroots origins are what keep her grounded in the glitzy entertainment industry. "I never see myself as a star. That's one reason I think I'm different from other celebrities. Many celebrities, as I observe, naturally see themselves as a star in their everyday lives. They identify as their public persona. But I think they're totally different," Li said.

Soon after her performance at the *2020 New Year Countdown Gala*, Li quickly took off her makeup and flew back to Beijing. The food her driver had delivered was already waiting for her at home. That night, Li had hotpot for one.★

Kangding

Peak Relaxation

There's more to Sichuan than adorable pandas and hot-as-hell cuisine with an escape to the edge of Tibet and the gold-templed mountains of Kangding

By Adam Robbins

Visitors can experience Tibetan culture at Muya Tourist Resort

Huddled at home or strapping on a surgical mask for our everyday tasks, the need to get away feels both urgent and remote. So I'm happy to let my mind drift back to Kangding, tucked away in the mountains of Southwest China's Sichuan Province, and the breath of fresh air it provides.

In the stress of these times, it's healthy to seek out spots in nature where the mind can regroup and relax. Those appear in wonderful abundance in this remote town that once served as gateway to the ancient Tea Horse Trail, with the splendour of that time still lingering today.

After a day spent with the feisty culture and food of provincial capital Chengdu, it was a short flight to Kangding: an hour after takeoff we were touching down on a tiny mountaintop airstrip – the third-highest in the world – and then haggling with the drivers waiting to take us to town. There's no taxis up there, so haggling with private drivers is your only option.

You could drive there from Chengdu, as our friends did, but it's three hours or more we didn't want to spend crammed on a bus on the Jingkun Expressway.

We'd originally planned the trip around the Mugecuo Scenic Area, just half an hour north of Kangding by car. The local tourist industry concentrates there, fixed around the 7,556-metre Mount Gongga. Travel companies like Third Pole offer days-long treks up this "King of Sichuan," while the more adventurous simply hire a guide and horse from nearby Gexi Pasture.

Decidedly less intrepid, I'd planned to stay closer to the ground, with one of the bus tours that bring passengers to Mugecuo Lake and the surrounding Red Sea Grassland. The nearby Rhododendron Valley sounded scenic and we could just catch the end of its April-July blooming season.

We might even have time for the pagodas of the 1,000-year-old Tagong temple, set against the sacred Yala Snow Mountain and the vast Tagong Grassland. It's also a short drive from Kangding, with buses heading there as well.

But that was not to be.

A health crisis followed us to Kangding, laying my companion low as his allergies exploded into fever and chills, ultimately diagnosed as a sinus infection made worse by the elevation. The town, we're happy to report, boasts a quite respectable new hospital for all your emergency needs (may you never need to see it).

Kangding, within Garzê Tibetan Autonomous Prefecture, is most of the way up to the Himalayan ceiling of the world, and marks the start of ethnic Tibetan areas. So brace yourself. I didn't feel ill from the altitude, but your mileage may vary. My companion's certainly did.

So, despite all our plans, I was alone in this town of 100,000 with two days on my own. I couldn't even travel on to join our friends, if I'd wanted to abandon my companion. Our hotel manager reported that the mountain pass was impassable. Whether because of the time of day, the weather conditions or some political sensitivity, he did not say. So I resigned myself to stay put. I was sure I would have a dull and miserable time.

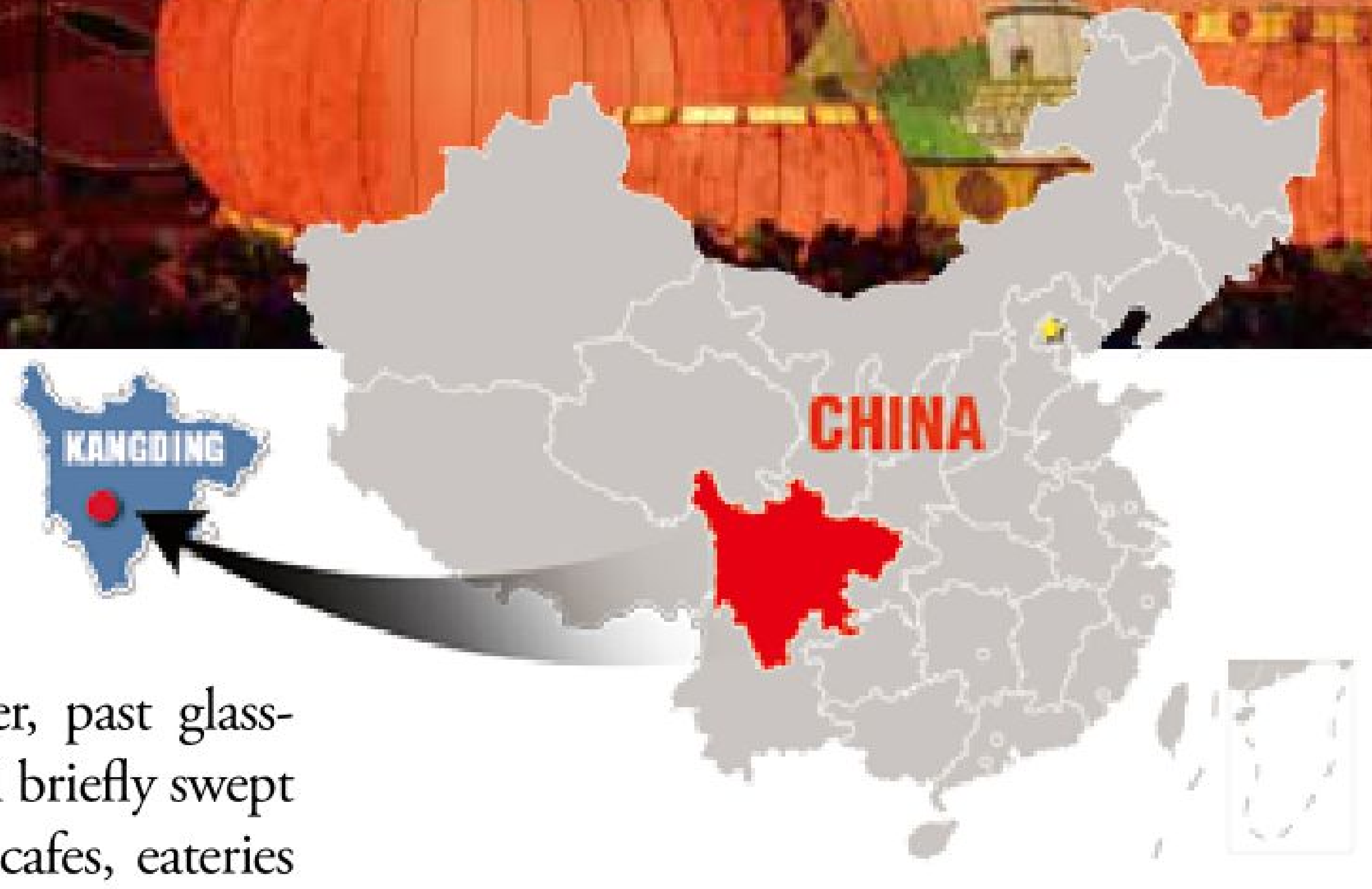
I've never been so happy to be wrong.

To begin with its most impressive feature, consider the Zheduo River. This sluice of amazing force courses though the centre of Kangding in endless froth and fury. It takes

PRACTICALITIES: Flights to Kangding depart from Chengdu each morning, with one return flight at 12:35pm each day. Alternatively, you could hire a driver from Chengdu.

Taxis and private cars are available. Be prepared to flag down a cab and to share it with others. Buses are available, with schedules and signs in Chinese.

The best time to visit is April-May and September-October. The high elevation leaves the area cooler, with a rainy season from May to September.



Lanterns light up the night before the lunar new year in Kangding, January 16, 2019

13,000 steps to trace the river, past glass-bottom bridges that let you feel briefly swept away. Though the city boasts cafes, eateries and tourist shops, few are located along that river walk. The constant roar is too much, so we're left to seek quieter nooks for rest and contemplation.

Those abound, especially in the form of splendid, gold-capped temples that ornament the city and the mountainside. Havens of Tibetan Buddhism, reflecting roughly half of Kangding's population, they mostly welcome tourists, but be sure to remove shoes and be polite. These little sanctuaries may be some of the most peaceful places in China, when they're not intoning their prayers. At all times, the scent of incense wafts into the brain, helping to soften the roughest edges of the world.

Hikers, of course, will find quiet spaces of their own, out in the arboreal expanse of the mountains. If you're inclined that way, you can make Zhilam Hostel your base camp. They offer advice on routes, as well as basic supplies and expat-friendly meals before and after your journey.

But the less intrepid of us are still in luck. Mount Paoma, tucked alongside Kangding, boasts a fascinating and worthwhile mix of nature and Chinese tourist bric-a-brac – and a gondola to let you sit in comfort, rather than hiking two hours to ascend. The cost is minimal and well worth it for the view, provided they don't seat you with one of the many loud families that make the same journey. But if you get anxious about heights, or just need time to acclimatise to the altitude, the leisurely hike is the better option.

When you reach the gondola's end, you can hang around in that flat area, or you could climb the many sets of stairs that meander towards the peak. You can imagine which I chose.

After an easy climb I was rewarded with a beautiful temple, open to the public and free. From its mountaintop vantage, the whole of Kangding lay splayed out below. The people, the traffic, and even the river were quiet and calm from that perspective.

Inside was empty, save the maroon robes of the monks, curled and waiting to be donned for prayer. All around, incense burned and prayer flags whipped in the high winds, brilliant hued and threading the uncaring forest with familiar trails. In the unpeopled quiet, the mind at last can relax from its clenched strain. There's peace to be found there.

As the sun began its slow descent, I followed and returned to the hurly-burly of the raging river and the people below. But for a while, I could carry some of that peace with me, whether in one of the agreeable cafes like Himalayan Coffee or at Malaya Tibetan Restaurant over some local fare (think "yak" and "yak butter"). I passed another temple, down in the old town, with the great golden wheels of prayer and the devout making their holy circuits. The flags, the wheels, the beads: These trinkets and tokens felt like useful reminders of a broader perspective.

I know a holiday or a visit to a Buddhist temple won't fix all my problems, or yours. But things like that do help to make us more patient and more peaceful, in the face of a world of virulent stress and troubles. And that's exactly what we need right now. ★

Life in the Time of the Coronavirus

By Emil Daynov

As I watched my wife carefully tuck away her hair under a hat, put on two masks, one on top of the other, place ski goggles over her eyes, then pull on disposable gloves, and then a plastic raincoat on top of her winter clothes, I felt like we had become characters in a film

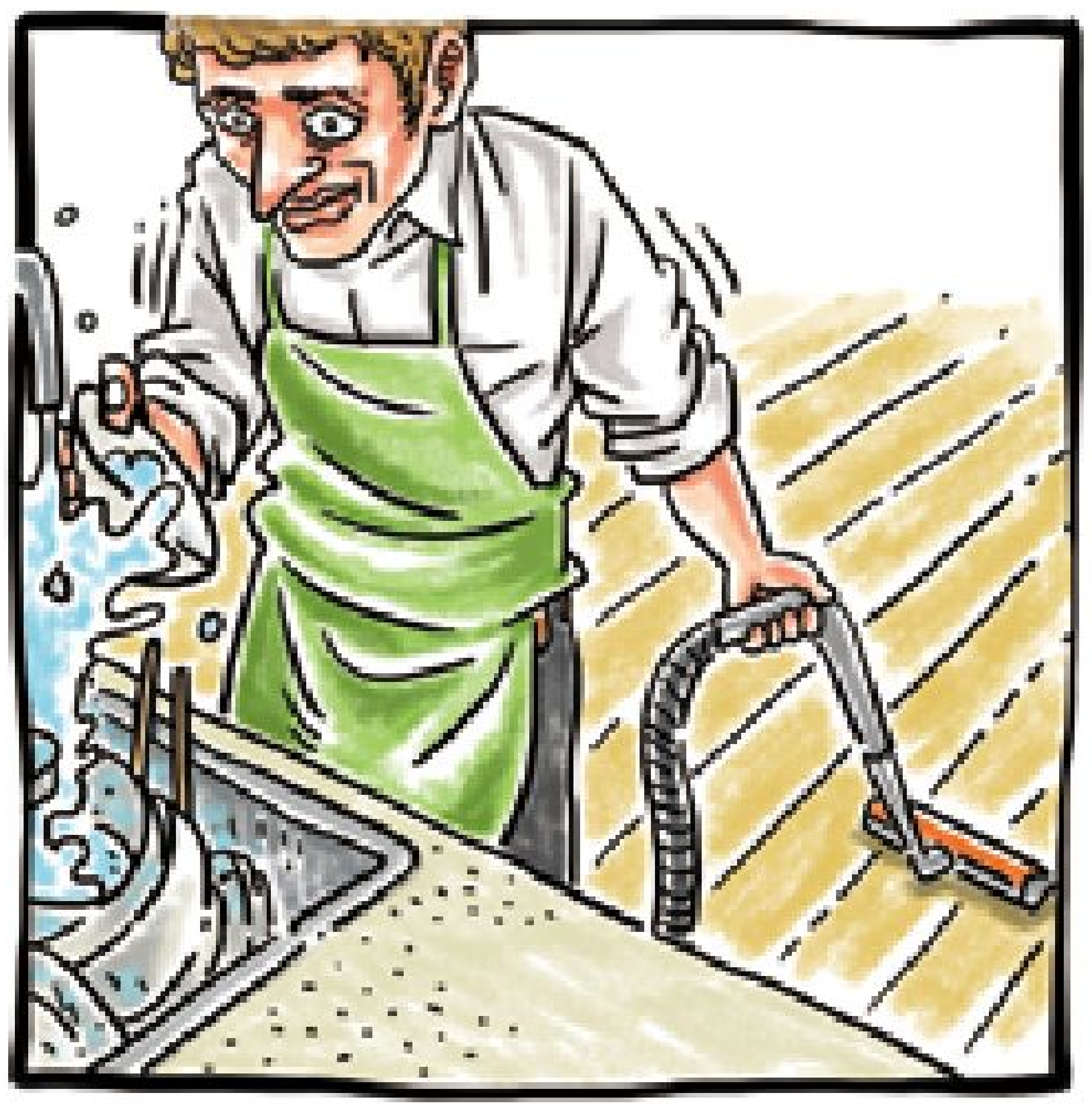


Illustration by Liu Xiaochao

My wife and I began to suspect it was all for real on the third or fourth day after the novel coronavirus became a conspicuous element of the news cycle. We have long since admitted to ourselves that yes it's happening, and yes it's big.

Through our flat's front windows, we can see a serious chunk of Beijing's Central Business District. Around the time of the international new year, the imposing skyscrapers – old and new – lit up in a display of confident bombast, sending out celebratory beams of light into the sky and into each other.

Yet all this flickered out, instead of erupting into true dazzle for the lunar new year, as should have been the case. The optimistic and bustling futurism of the Beijing I got quite used to has now been replaced by a more subdued version.

Four days ago, it was time to collect medical supplies from the hospital for my wife's elderly parents. Preparing for the journey was quite something. As I watched my wife carefully tuck away her hair under a hat, put on two masks, one on top of the other, place ski goggles over her eyes, then pull on disposable gloves, and then a plastic raincoat on top of her winter clothes, I felt like we had become characters in a film.

Inside the hospital, a new State insurance healthcare rule – reflecting the realities of the current epidemic – allowed the taking of a huge packet of three-month supplies, as opposed to the usual one-month limit.

Her parents reside within a gated community, which has now begun filtering incoming people very carefully, with proof of stated business and thermometer readings. Periodically we come over to bring in some groceries, take out the garbage, and so on.

We only go shopping about once every 10 days now, but when we do, we shop for two families, and for twice as long. And it's not just us. People's supermarket carts are fuller than before. The lines at the cashiers have quadrupled in length. Everyone is wearing masks.

At home we've assigned a cupboard for canned foods. The shelves are still stocked well enough, but I sleep better at night knowing I've got some tuna, spam and beans tucked away.

Although we're both healthy, and my wife's parents also keep their various conditions under control, still we fret about the implication of overstretched medical resources. We know that our much-loved Peking Union Medical Hospital College has alone sent hundreds of doctors to Wuhan to help fight the epidemic. We know that all over China the priorities have changed, for now. Definitely not a good time to bother the health system with stuff that can wait.

Over the last two years my wife and I have become members of a close-knit community of half a dozen young families living in our building. We had planned to meet up and make merry just after the lunar new year, but now we've all forsaken physical contact. Even those of us who are next door to each other.

Yet we continue communicating via WeChat, sharing jokes, anecdotes, encouragements.

In the past we all used to give each other tasty snacks and various small gifts. Now it's masks. Just recently one of the neighbours – a young film sound engineer – shared his supply of face masks with us all, after managing to find a batch. He left packets in front of our doors.

Of course my wife and I are worried. This is only natural. We discuss news updates every morning and every evening. On the internet, the numbers can be quite frightening. Numbers? Human fates.

Then there's the economic dimension. Many businesses will lose money, and we also will likely lose money (We've certainly cut consumer expenses down to essentials for now).

Yet, with people mostly staying at home, this health crisis is also a time to reconnect with family and with yourself. I, for example, am now catching up on books which I've been waiting to read or re-read, and films I've been waiting to watch or re-watch.

But that's not all. My wife grabbed with both hands the opportunity to get me to pull my weight around the house, and now I have become acquainted with the arcane arts of the vacuum cleaner, and also the ancient cryptic wisdom of dishwashing.

From our kitchen, I can see people in the windows of the apartment building just across the way. One of the tiny figures is jumping up and down, waving its arms, doing aerobics to keep fit while cooped up at home. Good idea. Time we started doing something similar, to keep the blood flowing.

Our initial optimistic hope that in a week or two everything would be back to normal is obviously not going to happen.

But we're keeping calm and carrying on.★

Virus Hits Home

By Kathleen Naday

The irony, I suppose, was that people kept asking if I was going home. The UK government, in its infinite wisdom, suddenly suggested all British citizens should just drop everything, with no assistance provided, and leave China. Otherwise no help could be guaranteed, should there be a need, for those of us outside Hubei Province, centre of the novel coronavirus epidemic and subject to a strict lockdown since before the Chinese New Year holiday.

And go where? I replied in a grumpy Facebook post. Are they going to pay for me to leave? Pay my salary? Provide accommodation? I have a job here. Responsibilities. There was never any other decision for me. I rescue animals, and couldn't abandon them anyway.

Then came Storm Ciara. It swept across the UK from the Atlantic, packing super high winds, knocking my mother off her feet when she attempted to close a banging garden gate. She hit her head, and took herself by taxi to the local hospital's emergency room, where they did not seem to think the damage was too great, and sent her home. She messaged me to tell me what had happened, pleased she had managed it all herself.

The following day it was announced that a local doctor, who had been working in that very emergency room, was infected with the virus. They had come into contact with a businessman, a so-called super spreader, who had picked it up at a business conference in Singapore attended by people from all over the world, including China. He had an elaborate trip home, via France for a skiing holiday, and then back to Brighton, a city a few kilometres down the road from my hometown. One of the people on the ski trip was the doctor.

My mother contacted me, worried. She wondered if she should self-isolate for 14 days. I looked at the dates, and found the infected doctor had been there a few days before her visit, so the risk to her was very low. Still, it illustrates well the web of unlikely connections and pathways such a virus can take.

I was also in China during the SARS epidemic of 2002/3. At that time, I was a tour guide. No one knew the severity of the crisis until quite late, so when I boarded an Air China plane with my group at Heathrow, it was perturbing to see all the crew wearing masks. The trip was a great success – at least until it got cancelled halfway through in Shanghai. Everywhere we went was empty – it was lovely looking at normally crowded places like the famous gardens in Suzhou with no crowds of tourists following guides wielding loudhailers.

The first efforts at temperature-taking were chaotic. We had to fight our way out of Nanjing airport. The staff at the Shanghai hotel played with the thermometer, sticking it in and out of each other's ears. I watched for a while, and then firmly instructed them on the use of disinfectant. But eventually, I got the message that we were all to be repatriated. I was upset for the group, as they would miss their Yangtze cruise, but more upset that I would be leaving my friends in Beijing behind. Plus my mother wouldn't allow me to go home for a week.

A morning ritual is to get a phone call announcing the arrival of a package. They are all to be picked up at the gate. Sometimes, the box is light. Other times, it's kilos of cat litter. I'm gratified to see neighbours going out in their pyjamas. It makes me feel better about looking scruffy

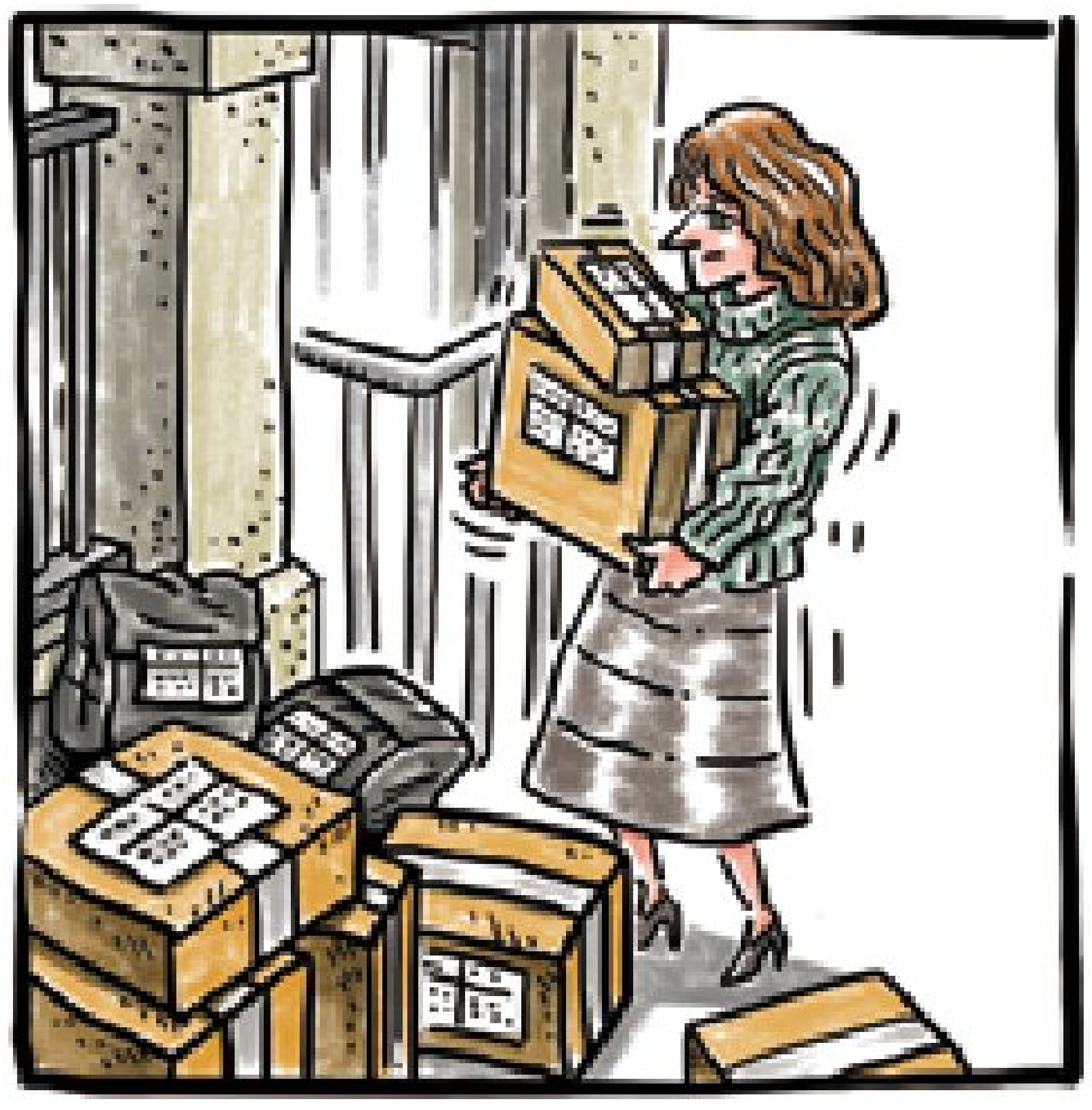


Illustration by Liu Xiaochao

This time, there's no chance of repatriation. I'm fortunate to live in a residential compound with a garden – albeit quite unkempt. And I have to walk the dogs several times a day, so I can't stay inside. While there is no mandatory quarantine in Beijing, there are few places to go and rules about how many people you may sit with. I live alone – except the cats and dogs – but I feel it must be worse to be cooped up with a family and children for all this time. Like an endless Christmas holiday without the presents.

Not that there aren't boxes and packages arriving every day. I had to learn to do some online ordering, as my usual pet food suppliers, I realised early on, would probably not make it back to Beijing anytime soon. My friend accused me of stockpiling. It's not me, I protested, it's the rest of them.

A morning ritual is to get a phone call announcing the arrival of a package. They are all to be picked up at the gate. Sometimes, the box is light. Other times, it's kilos of cat litter. I'm gratified to see neighbours going out in their pajamas. It makes me feel better about looking scruffy. The security guards spend more time organizing people's home deliveries than doing anything else.

There are trips to the supermarket. One local shop had a supply of sterilizing handwash. Does it have a smell, I asked, because I'm allergic to perfume. "It smells of alcohol," the assistant said. I tried it when I got home. I almost got drunk on the fumes. I think they must be using alcohol stocks that can't be used, as there is a ban on parties.

We will celebrate when this is all over – I'm imagining it now. But we will not forget the suffering people have endured, and I hope to never experience it again. ★

Burgers Were Born in China: Roujiamo

By Mina Yan

"You Americans love hamburgers and fries. You invented that stuff," a Chinese friend told me. Well, while McDonald's and the whole fast food industry was an American brainchild, the idea of a hamburger was born right here in China. Western fast food chains didn't make their way to China until 1987 with an outlet of Kentucky Fried Chicken (now KFC), but the idea of a delicious meal on-the-go isn't anything new to the Chinese people.

On my first trip to the city of Xi'an, Shanxi Province at age 13, I was incredibly fascinated with fine dining and had already lined up all the fancy restaurants that I wanted to visit. But when we arrived, our local family friend drove us straight to a small grungy restaurant and ordered us *roujiamo* (which directly translates to "meat plus bun"). Although my teenage self was disappointed by the dingy decor of the restaurant, I was fascinated by the fragrant scent in the air. "What was this stuff and why did this guy insist that we eat them?"

There were no smartphones back then and I hadn't done my foodie research. Turns out that *roujiamo* is a must-have for anyone visiting Xi'an. Nicknamed "Chinese hamburgers," *roujiamo* consist of chopped meat stewed in seasoned juices for hours and a fresh pita-like bun. They date back all the way to the Qin Dynasty (221-206 BCE), most likely making it the world's first hamburger. Nowadays they're popular all over China. The traditional *roujiamo* started with pork, beef and lamb. Today, restaurants sell them with chicken and tofu to cater to dietary restrictions.

Like McDonald's, joints that specialise in *roujiamo* aren't fancy. But unlike McDonald's, *roujiamo* are always made fresh (and if they're not, don't bother). They're basically served in tiny restaurants and eaten as a quick meal. The bun (*mo*), is traditionally wheat and baked in a clay oven. The soft fluffy inside serves as a nice pillow for the meat (*rou*) and soaks up the tasty broth. Take that you mass-produced Big Mac!

Every restaurant has their own secret recipe for the broth. If you find one that blows your mind, that becomes your go-to *roujiamo* spot. The meat slow-cooks in a mix of 20 or more spices including ginger, cloves, coriander, star anise and whatever secret ingredients the chef adds, tenderizing and soaking up every bit of flavour. Today my brain associates the best *roujiamo* with the most modest of restaurants. The dingier, the better (probably). To me, small joints mean the meat is cooked fresh and the recipe they used isn't passed down from a corporate chain. It's made with local ingredients and prepared with years of home-cooking experience.

Since that first bite in Xi'an decades ago, *roujiamo* has remained one of my favourite snacks. I think they're less like a hamburger and more resemble a Sloppy Joe, another of my all-time favourites.

Whether it's a trip to Xi'an – home of the Terracotta Warriors – or any city in China, you're sure to find a place that serves up *roujiamo*. Take it from me and don't judge the restaurants by appearance. Give that dingy little place a chance, and its home-taught chef might just mix up the most mind-blowing Chinese hamburger you've ever tasted.

When in China, this is how we *rou* (*jiamo*). ★

real chinese

zhái

宅

zhai

to stay in, a homebody

To help control the spread of the Covid-19 outbreak, most Chinese people self-quarantined at home from late January to early February. There is a specific word in Chinese that perfectly describes staying in for long periods: *zhai*.

Originally meaning "big house" or "residence," *zhai* is also used as an adjective and verb to describe introverts who prefer to stay home rather than have to deal with the social anxieties that come with going out.

In recent years, the internet has provided a much larger space for those who are *zhai*, such as streaming films and online gaming. Also, even small consoles like Nintendo's Switch combine video games with exercise to make sure you keep moving in front of the TV.

Zhai can also be complimentary. *Jishu* (or "technology") *zhai*, for example, describes people skilled in science and engineering who like to study new technologies at home. But if someone calls you a *fei* (or "fat") zhai, they're saying you're a fat, lazy couch potato.

Most *zhai* people feel they don't need to go outdoors as long as they have access to food and the internet. But the recent quarantine has put their *zhai* tolerance to the test, and some are discovering they're not as indoorsy as they thought. It seems fresh air beats fast internet, for now. ★

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